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ANNUAL REPORTS
AND
PROCEEDINGS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

SERIES II
VOLUME
IX



1928-29
TILL
1937-38

Belfast:
PRINTED BY THE NORTHERN WHIG, LTD., BRIDGE STREET

1938

ANNUAL REPORTS

PROCEEDINGS

BELFAST NATURALISTS

FIELD CLUB



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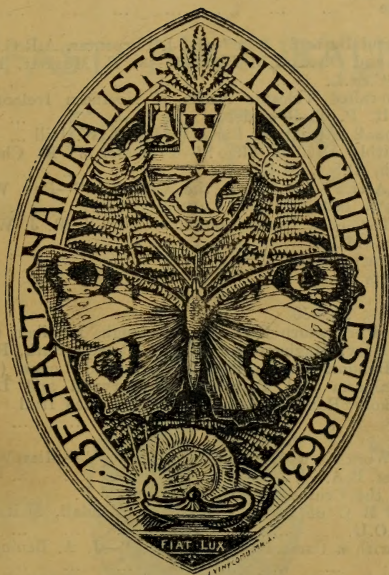
NATURAL
HISTORY.

PROCEEDINGS

... AND ...

ANNUAL REPORTS

SERIES II.
VOL. IX.



PARTS
I, II.
1928-29.
1929-30.

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PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1929

(SIXTY-SIXTH YEAR).

SERIES II.
VOLUME IX.



PART I.
1928-29.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS
FIELD CLUB

EDITOR:

WILLIAM M. CRAWFORD, B.A., F.E.S., F.Z.S.



BELFAST NATURALISTS' FIELD CLUB.

SIXTY-SIXTH YEAR, 1928-29.

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S. Freeland.

J. R. H. Greeves, B.Sc.

Retire 1930.

Miss W. M. Rea, M.Sc.

Rev. W. R. Megaw, B.A.

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A. E. MUSKETT, B.Sc., A.R.C.S.C.L., St. Helen's, Old Stranmillis Road, Belfast.

PROCEEDINGS.

SUMMER SESSION.

CAVE HILL AND M'ART'S FORT.

Date—Tuesday evening, 22nd May, 1928. Conductor—The President (D. J. Carpenter). Number present, 90.

The party started from Castle Junction at 6.30 p.m. and were conveyed by special tram to the Old Cavehill Road, where others joined in, and the numbers then amounted to ninety.

They proceeded on foot to the Cave Hill quarry, where the President gave an interesting talk on the geological formations, pointing out the cretaceous and liassic strata, and so demonstrating *in situ* the main aqueous rocks of the Belfast area. He also showed and explained field evidence of the fact that Co. Antrim had at one time been subjected to great volcanic activity, and that the basalt was a lava. The evidence included the different lava flows with different characteristics, the vesicular and amygdaloidal nature of various basaltic specimens, and the baking to a red colour of the flints accumulated on the top of old irregular chalk country.

At the top of the quarry two fine basaltic dykes were shown. At the one the conversion of the chalk to marble by contact metamorphism was well seen, and at the other the presence of a fault was readily demonstrated.

After leaving the quarry a halt was made half-way up the hill, where Mr. Carpenter explained the ingenious escape device found in the cocoon of the Emperor Moth, which was found amongst the heather.

On the Hill it was interesting to find four typical wood plants amongst the heather, viz.:—Wood Rush (*Luzula sylvatica*), Wood Anemone (*Anemone nemorosa*), Wood Violet (*Viola sylvatica*), and Wood Sage (*Teucrium Scorodonia*).

After visiting M'Art's Fort the party returned *via* Bellevue and Hazelwood. On the slopes of the latter *Pyrola rotundifolia* was found by some of the members.

PORTMORE DISTRICT.

Date—2nd June, 1928. Conductors—The General and Sectional Secretaries. Number present, 60.

This excursion took the form of a preliminary inspection of Portmore and district, an area selected by the Committee as suitable for a regional survey. The party left the Museum, College Square North, by motors at 10 a.m., and reached Gawley's Gate, close to the shores of Lough Neagh, about 11 a.m. From there a ramble was taken along the small but picturesque road bordering the Lough to Tunny Bridge, and thence to the Glenavy river, the members looking for plants and zoological objects according to their several tastes. Meanwhile some of the members had devoted their energies to an exploration of Portmore Lough. At 5 p.m. all collected at Lower Ballinderry Schoolhouse for tea, after which a business meeting was held, a start being made for home about 8 p.m.

CARNGAVER HILL.

Date—16th June, 1928. Conductor—Captain C. D. Chase. Number present, 20.

In perfect weather about a score of members enjoyed the eight miles walk from the Belmont tram terminus, *via* Ballymiscaw and Craigauntlet, to the top of Carngaver and from there to the main Newtownards road at Bradshaw's Brae, where buses were taken back to the city. Carngaver is the highest point of the Holywood Hills (750 feet), and on this exceptionally clear day Scotland and the Isle of Man were as distinct as the Mourne Mountains. *Anchusa sempervirens* was seen near a farm, and Mr. Nathaniel Carrothers showed the botanists the rare *Pyrola minor* in the station discovered some years ago by A. W. Stelfox.

MONLOUGH.

Date—19th June, 1928 (evening). Conductors—S. Freeland and J. A. S. Stendall. Number present, 65.

A party of over sixty members, with their friends, took part in the fourth excursion of the season to Monlough, a stretch of water hidden among the rolling hills of County Down between Carryduff and Ballygowan. The journey was made by motor coach, and on arrival at the east end of the lough the party was met by Mr. J.

M'Williams, who resides nearby, and who acted, in his genial way, as guide, philosopher and friend throughout the evening.

The eel weir and traps were first visited. Here the conductor gave a talk concerning the strange life-history of the eel, and explained the method of capture by means of the weir and trap. Afterwards members approached the lough by way of Mr. M'Williams's farm, and commenced a diligent search for botanical and zoological treasures. Some members, armed with nets, searched the drains for their occupants and made a rich haul, which included water beetles, caddis-fly larvæ, and hosts of mollusks of different species.

The President (Mr. D. J. Carpenter) gave a short talk on the birds of the district, and was followed by Mr. R. J. Welch, who gave an account of the water animals found. Mr. M'Williams added interest by his account of the wild life of the area.

After a tour of the little fir-planted "islet"—fortunately it was a peninsula on this occasion—Captain C. D. Chase gave an address on the botanical features of the neighbourhood. He mentioned that out of the six or seven hundred species of plants known to grow in County Down some two hundred were present in the Monlough area, which possessed, so far as is known, no plants of outstanding importance, but nevertheless many that were interesting. Some twelve species of sedges had been found during the evening, many grasses, together with several flowering plants, including Bogbean, Brooklime, Water Blinks, Lesser Spearwort, and Marsh Cinquefoil.

Before leaving the President proposed that a hearty vote of thanks be accorded Mr. and Mrs. M'Williams and family for their kindness in allowing members to roam over their lands and for the interest they had taken. This was seconded by Mr. A. A. Campbell, and passed with acclamation.

The return journey was made *via* Castlereagh, the outing being voted by all to have been of much educational value.

BESSBROOK.

Date—30th June, 1928. Conductors—The President and W. A. Green. Number present, 42.

The party were conveyed by charabanc and private cars. Starting from College Square North at 9.0 a.m., they

proceeded *via* Lisburn to Dromore, where the iron stocks and ancient cross were examined; then to Banbridge, past Loughbrickland and its crannoge to Newry.

From there Miss Barcroft (The Glen, Newry) and Mr. J. Richardson (Bessbrook) conducted the party to Killeavy. There some interesting Cists were examined, and Killeavy Church, with its two churches of different ages, cyclopean doors, &c., were well studied.

Afterwards the party proceeded past the beautiful Camlough Lake and Camlough Village between the bases of Slieve Gullion and Sturgeon to the Cashel Lakes, where a stop was made for lunch. The scenery in this neighbourhood is exceptionally fine, and geologists were able to note the difference in the aspect of the silurian country and that of the Newry granite areas. Among the botanical specimens found near Killeavy and the lakes were the Butterwort, Sundew, Marsh Cinquefoil, Butterfly Orchis, Lesser Spearwort, &c.

After lunch, the party proceeded to Dorsey Mill to view the great earthwork known as the Dun of Dorsey, with its deep parallel entrenchments about 18ft. apart and from 14-23ft. deep. It is regarded as the remains of a dun or fortified residence probably occupied by Cucuchlan.

Returning to Bessbrook about 5.30 p.m., the party enjoyed the hospitality of Mrs. Williams, The Woodhouse, and the members were delighted with the splendid reception given them by the hostess and her many kind helpers.

After tea, the party visited the rock gardens at The Woodhouse and Deramore House, and then returned to Belfast *via* Portadown.

At Dromore and the Dun of Dorsey the party were addressed by the President, at Loughbrickland by Mr. W. A. Green, and at Killeavy by Messrs. R. S. Lepper and H. C. Lawlor.

DUBLIN AND DISTRICT.

Date—12th to 14th July, 1928. Conductor—R. J. Welch.
M.Sc., M.R.I.A. Number present, 48.

The members left Belfast on Thursday morning, 12th July, by the G.N. Railway breakfast train, and, after arrival at Jury's Hotel, were soon on their way to see Christ Church Cathedral, where the Very Rev. Dean Kennedy kindly showed them many objects of great historical interest. The same afternoon a visit was paid to the Zoological

Gardens in Phœnix Park. The Secretary, Mr. B. B. Ferrar, M.R.I.A., conducted the party round, and showed them most interesting new animals and also the fish hatchery.

Next morning the National Museum, which the party visited with Dr. Praeger and Mr. A. W. Stelfox, impressed them particularly. They were shown the Irish cave remains, the skeletons of Irish Deer, the finest in existence, and many other interesting objects in the Irish Room. In the Gold Room they inspected the Royal Irish Academy collection, which includes St. Patrick's Bell and Shrine, the Tara Brooch, the Cross of Cong and the Limavady Find. Amongst the many exhibits of unusual interest they saw the prehistoric sepulchral urns and the Ogham Stones. Botanical enthusiasts were shown over the Herbarium by Miss Knowles, daughter of the late eminent Irish antiquary, W. J. Knowles, M.R.I.A.

During a visit to Trinity College the visitors saw the celebrated mulberry trees in the Fellows' Garden, where a fresh tree has been planted only once in every hundred years for five centuries.

After lunch an excursion was made to Powerscourt Demesne and Waterfall, and in this connection a warm tribute was paid to the Dublin taxis, in which some of the party travelled. The ancient Irish oak forest was a great source of delight, and one of the lady members of the Club was charmed with the opportunity she had of petting and nursing a baby Japanese deer.

The vicinity of the Waterfall is the finest collecting ground in Ireland for entomologists; the geologists amongst the party had much to interest them in the curious contortions of the schistose rocks near the Falls, and the botanists were busy gathering specimens of mosses and fungi.

As is the custom of the Club on excursions, a business meeting was held during the afternoon, the place chosen being the Scalp, where members gathered on the return journey. This meeting, Mr. Welch said, was rather interesting owing to the strange fact that it was held in two counties. They assembled to discuss their affairs in two groups, one on each side of a three-foot wide stream which marks the boundary between County Dublin and County Wicklow.

Amongst the subjects discussed at the meeting was the quarrying which is going on in the Scalp, and which they viewed with dismay on account of the menace to the glacial overflow channels, which are the finest in the British Isles.

It was decided, on the motion of Mr. W. M. Sweeney, seconded by Mr. C. R. Nodder, to protest against this spoliation of one of the finest natural national monuments.

The last day of the Club's visit was devoted to a ramble in the Howth district and a visit to the Bailey Lighthouse. After this the party left by the 6.40 p.m. train, and reached Belfast about 9.30.

SCARVA.

Date—Saturday, 21st July, 1928. Conductors—Col. R. G. Berry, M.R.I.A., and A. A. Campbell, F.R.S.A.I.

Number present, 57.

A party of fifty-seven members visited Scarva for which the Great Northern Railway Company courteously reserved a coach on the 2.20 express, and stopped specially at Scarva for the accommodation of the party.

The principal item on the programme for the afternoon was the inspection, by kind permission of Mr. H. B. Thomson, of the remains of the Danes' Cast or Black Pig's Dyke in Scarva House demesne. Colonel Berry gave an address on this chain of earthworks, which extends from Newry to Ballyshannon, and was probably a boundary of Ulster or Meath. He pointed out that the name "Danes' Cast" does not denote exclusively the Great Wall of Ulidia in Glen Ree, which had for its prototype the Roman Walls in Britain—the Antonine Wall and Hadrian's Wall. When Emania was destroyed by the Three Collas in A.D. 333 and the Ultonians were driven out, the Ultonian Wall in Glen Ree was built, and its history as a boundary and defence extends up to the time of Shane O'Neill. Many traditions and even names are common to the Ultonian and Roman Walls, and the famous sham fight at Scarva had its counterpart at the Catrail in Scotland and elsewhere on the Roman Walls.

The Great Wall of Ulidia was not a sod wall, but was an earthwork resembling the vallum of the Southern Roman Wall—a ditch with parapets on either side. The large number of forts on the east suggests defence from that side. Owing to its commanding position, with natural obstacles along its western front, it must always have been of strategic importance, and would be so even to-day, as a defensive line with its flanks resting on two great pieces of water—the sea and Lough Neagh.

Mr. D. E. Lowry, J.P., recounted some of the legends associated with the "Black Pig."

On the way back to the village some of the older members visited the grave of Mr. W. J. C. Tomlinson, once an active member of the Club. Tea was served at Mrs. Dunlop's, after which the return journey to town was made.

ARBOE CROSS AND TOOME.

Date—4th August, 1928. Conductor—Joseph Skillen.
Number present, 45.

The Club visited Arbœ (Tyrone) in ideal weather, and on the picturesque shores of Lough Neagh found themselves on historic ground, as they were informed by their conductor.

The magnificent Old Cross, which stands about 18ft. high, was inspected with interest. This well preserved relic of early Christianity in Ireland is one of the finest high crosses in the country. Recently it was taken over by the Northern Government to be preserved.

Near the Cross the party saw the remains of the old church in the graveyard, and farther north along the shore the ruins of an older church and monastery, whose foundation is credited to St. Colman. It was destroyed in 1166.

An interesting object noted by the party was a large beech tree in a corner of the graveyard, with thousands of pins sticking in the bark. Known locally as the pin tree, it is supposed to have been a holy tree, and the superstition connected with it is that anyone making a wish and putting a pin into it will have that wish fulfilled.

Mr. Skillen thanked Mr. C. Beatty, J.P., Coalisland, for the trouble he had taken to make the excursion a success. Thereafter the party had lunch, and then took a stroll along the shore.

On the return journey a stop was made in Toome and a visit paid to the ruins of "Carey's Temple." while, after tea in the hotel, opportunity was taken to inspect the eel weirs and also the diatomaceous clay deposits.

GREENCASTLE AND KILKEEL.

Date—1st September, 1928. Conductor—R. J. Welch,
M.Sc., M.R.I.A. Number present, 65.

The Club selected the old Anglo-Norman military fortress of Greencastle, Kilkeel, for their ninth field excursion. The run by express train to Warrenpoint was very quickly accomplished, and the party in two motor-chara-

banes were conveyed to the famous old Castle on its rocky eminence. Here the party first climbed up to the great banqueting hall, from which glorious views of the Mourne range and Carlingford Mountains were obtained; the more venturesome went by the winding stair to the wide parapet and angle towers on the top of the very thick walls. The party then scattered for lunch, some taking it on the very summit of the walls in blazing sunshine, others lunched on the sea shore close at hand or on a sunny bank below the Castle.

After lunch the party made its way along the gravelly shore, the habitat of a number of rare or very local plants, to the tumulus of Knock Tinvel, or hill of the Assembly. Here half the party stayed for nearly an hour, admiring the fine panorama of mountain and lough, while the other half, led by Mr. A. A. Campbell, trekked over the raised-beach platform below the tumulus to the old Church near the Castle, all meeting together again on the roadside at four o'clock, where the motors lifted them for the run to Ros-trevor for tea at the Great Northern Hotel.

CRAIGHULIAR QUARRIES, PORTRUSH.

Date—8th September, 1928. Conductor—A. M'I. Cleland.
Number present, 28.

This visit was made a special excursion for the Club, and the weather was magnificent.

At Portrush the party was met by Mr. W. A. Traill, managing director of the Causeway Tramway Co. (the premier electric tramway of the world), who very kindly placed a car at the disposal of the members as far as the Craigs, whence a short up-hill walk brought the members to the basalt quarry. Here the manager, Mr. A. M'Donald, met us, and gave us a hearty welcome, but was, unfortunately, not able to stay long with us. He gave the conductor two very fine pieces of chalcedony, nodules of which are sometimes met with in the upper layer of basalt at this quarry. Sometimes, as in the specimens presented by Mr. M'Donald, the nodules are hollow, showing fine crystals and stalagmitic and stalactitic effects.

The basalt of this quarry shows two very good exposures, the lower revealing excellent examples of columnar structure, the upper "amorphous" or "starch" structure. The latter is worked by preference, as it breaks more readily into cubes in the crushers, whilst the columnar basalt is more

inclined to flake. It is in the amorphous basalt that the best chalcedony is found.

In the columnar basalt we also found chalcedony, iron pyrites and calcite.

From the quarry we passed to the Lignite Workings, where several plant remains were found, but nothing very remarkable. The mine was closed at the time of our visit.

From the workings most of the members returned to Portrush by the sand dunes and the shore, reaching the Liassic Beds in time for a good discussion.

Tea was promptly served on the train at 7.20 p.m., and the return journey was in consequence very much enjoyed, Belfast being reached on time at 9.15 p.m.

MOUNTSTEWART.

Date—15th September, 1928. Conductors—E. N. Carrothers
and A. E. Muskett. Number present, 40.

This excursion took the form of a fungus foray, and the party journeyed to Mountstewart by taking train to Newtownards and thence by bus to Mountstewart. Through the kindness of the Marquess and Marchioness of Londonderry members were privileged to roam about the demesne in their search for fungi. They were fortunate in having for their guide Mr. Bolas, who is in charge of the gardens, and who, besides conducting the party to the most likely haunts of mushrooms, explained the layout of the beautiful gardens, the fame of which is well known. Most attention was given to the old woods, where large numbers of specimens were obtained, and the baskets provided for the collection of the spoils were well filled as the afternoon progressed. The presence of Mr. Welch, whose knowledge of the neighbourhood needs no comment here, was a great asset to the general success of the foray.

Before leaving the demesne a hearty vote of thanks was passed to the Marquess and Marchioness and to all who had contributed towards the success of the excursion.

Work was continued until the light began to fail, when the party journeyed by bus to Newtownards, where a substantial tea was enjoyed. After tea members returned to Belfast by train.

As a result of the foray a number of species not hitherto recorded in Ulster were added to the list.

BRITISH BRYOLOGICAL SOCIETY'S IRISH VISIT.

A brief notice of the above will be sufficient for our Proceedings, as the *Irish Naturalists' Journal*, both before and after the visit, published articles on the matter. Our Field Club entertained the visitors to tea at Hazelwood on the day of their arrival (25th August, 1928), and during their stay in the North some of our members were present at each excursion.

Details of excursions, records made, etc., will be found in the *I.N.J.* for November, 1928 (Vol. II, p. 112).

We may quote the following paragraph from the British Bryological Society's Report for 1928: "On behalf of our members we take this opportunity of thanking the Belfast Naturalists' Field Club most cordially for their hospitality and assistance during our visit. The Editor of the *Irish Naturalists' Journal* also gave the visitors every help and welcome, for which the Society is very grateful."



WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session opened with a Conversazione held in the Assembly Hall, Fisherwick Place, on Tuesday, 16th October, 1928. The function was largely attended by members and friends, and the many exhibits staged were viewed with great interest. The exhibits included:—

BOTANY.—Botanical Department, Queen's University—(1) The Ecology of the Moss Lane Region, Miss M. Duff, M.Sc.; (2) the Ecology of Divis Mountain, Miss P. H. Kertland, M.Sc. Prof. Small, Queen's University, some microscopic exhibits; H. Cairns, diseased fungi; Miss M. W. Rea, Canadian autumn wild flowers; C. R. Nodder, botanical exhibit; Capt. Chase, Mediterranean plants and Continental floras; Shaftesbury House Students, collection of fruits; E. N. Carrothers and A. E. Muskett, fungi.

GEOLOGY.—The President, some common ores, spars, &c.; Professor J. K. Charlesworth, Queen's University, fossil fish and ammonites; A. H. Davison, minerals from iron mines and other sources; Robert Bell, reptilian remains

from the Lias; A. M'I. Cleland, photographs, white basalts, Antrim rhyolites, volcanic tuffs, cross cut in lithomarge, chalcedony, disintegrated flint; Corporation Gas Works, chemicals from coal.

ZOOLOGY.—The President, some British butterflies and moths; Professor Gregg Wilson, Queen's University, a microscopic demonstration; W. M. Crawford, drawers showing in parallel columns similarity in butterflies from India, the Home countries and America; George C. Reilly, a beginner's collection of beetles, showing rough classification; R. J. Welch, land shells of the genus *Helix*, &c.; A. H. Davison, modern corals; Belfast Municipal Museum, models of the mouth parts of insects; A. M'I. Cleland, marine mollusca; James Orr, hawks and falcons.

ARCHÆOLOGY.—R. J. Welch, photographs of the newly renovated White Island Church, Lough Erne, &c.; Herbert J. Eason, palæolithic implements from South of England; J. C. C. Crawford, flint artifacts from Bushfoot, Whitepark Bay, and Larne raised beach; Mrs. A. W. Metcalfe, prehistoric implements from Donegal; Charles E. Kerr, an exhibit.

ETHNOGRAPHY.—R. S. Lepper, Oriental brass and weapons.

MISCELLANEOUS.—R. J. Welch, heraldic and composite bookplates, ladies' bookplates; Miss Mawdsley, eighteenth century books; A. R. Hogg, a panoramagraph from Bellevue and Hazelwood; Robert A. Black, photographs.

JUNIOR SECTION.—There was a very varied exhibit consisting of fossils, plants, shells, and photographs, as well as some objects of zoological or antiquarian interest, tabled by the Misses Rosaleen Capper, Marjorie V. D. Cleeland, Jean Cole, Nora Fisher, Barbara and Ethna Glendinning, Vivian Green, Jean and Peggy Loewenthal, Elizabeth Megaw, Beatrice Searle, Nora Stendall and Betty Watson, and the Masters Jack Blair, Martyn D. Cleeland, Angus and Ranald Macdonald, John M'Williams and Wm. Smith.

The Colin Mountain Survey consisted of exhibits under the following heads:—Model of Colin Mountain top, the Secretary; Mosses, Agatha R. Crawford and William Smith; Flowering Plants, E. Langton May; Ferns, Jack Blair; Fungi, William Loughridge; Birds, Nora Stendall; Grasses, Marjorie V. D. Cleeland; Geology, Ranald Macdonald; Archæology, Angus Macdonald; Fauna, Richard Davidson; Trees, N. Taylor.

At 9.10 p.m. a business meeting was held. The President (Mr. D. J. Carpenter) occupied the chair.

Mr. J. A. S. Stendall presented Mr. Robert John Welch, M.Sc., M.R.I.A., as a suitable person to receive the Club's Commemoration Medal. It was accordingly handed by the President to Mr. Welch, who made a suitable acknowledgment.

During the evening prizes were awarded to Junior members as follows:—Best collection of marine shells, Rosalene Capper; best collection made this year of local fossils, Elizabeth Megaw; water-colour drawings of flowers, (1) Lois M'Keown, (2) Nora Stendall; Naturalists' diary for month of July, 1928, (1) Agatha Crawford, (2) Jean Cole; exhibits of botanical interest, (1) Agatha Crawford, (2) Jean and Peggy Loewenthal; exhibits of local antiquarian interest, Angus MacDonald; exhibits of geological interest, (1) Jack Blair, (2) Martyn D. Clelland; best collection of Natural History specimens collected during this year's Junior excursions, (1) Marjorie Clelland; (2) B. and E. Glendinning, (3) William Smyth.

The thanks of the Committee are due to the donors of the prizes, who were as follows:—The President, the Vice-President, Messrs. A. M. L. Clelland, A. Albert Campbell, W. M. Crawford, Alex. H. Davison, R. S. Lepper, C. R. Nodder, Jas. Orr, R. J. Welch, and *The I.N. Journal*.

MOTH AND BUTTERFLY LORE.

The opening ordinary meeting of the Winter Session was held in the Old Museum, College Square North, on Tuesday, 20th November, 1928, at 8 p.m., when the President (Mr. D. J. Carpenter) delivered the inaugural address.

Mr. Carpenter first explained that the colour of most butterflies is due to pigmented scales, and that the pigment fades under the action of light. Consequently museum specimens have to be kept in the dark. In the case of iridescent butterflies used for jewellery the colour is due to a different cause. When light is reflected from a surface engraved with a large number of lines—about 10,000 to the inch—a beautiful colour effect is produced as in mother-of-pearl. Hot wax pressed upon the latter becomes iridescent, and microscopic examination of the wax reveals the presence of the fine lines. In the iridescent butterflies the

colour is due to a combination of structure and pigment. The iridescence persists after the pigment has faded, and so the colour may tone down but will not be destroyed.

The address then dealt with the characters of the perfect insect and the caterpillar, and the various methods of pupation leading up to the subject of "Mate-Finding."

In respect of the last mentioned Mr. Carpenter related some interesting personal experiences. Desiring to obtain specimens of the Emperor Moth, he spent three days on the moors and only acquired two specimens—one male and one female. A few days later two females emerged from a number of cocoons in his possession. One was put in a small cardboard box with small perforations and placed in the breast-pocket of his overcoat. The second was put in a wooden box covered with wire gauze, wrapped up in brown paper, and both boxes taken to the moors. On arrival the overcoat—turned inside out—and the two boxes were placed on the heather a few yards apart. Nothing happened. The brown paper was then removed from the gauze-covered box, and in about one minute many males swarmed around, and a number were caught with ease. The small cardboard box, though near, was almost neglected.

One male paid attention to the pocket of the overcoat which had contained the box for about an hour. After giving various reasons the lecturer expressed the opinion that the assembling of certain moths to a virgin female in this fashion was due to scent and not to wireless waves as suggested by some people.

The lecturer described how many experimenters had tried to pair assembling moths, but had not succeeded. The females seemed compelled to lay eggs, but they were infertile; yet at a butterfly farm in Kent the owner had no difficulty in mating and breeding moths. The explanation given was that at the butterfly farm large cages were used, while most experimenters used small boxes. Such facts had led naturalists to conclude that a preliminary flight was necessary before the males of assembling moths were sensitive to the attraction of the females.

Prof. E. B. Poulton, Oxford, had given an explanation of this interesting fact. It had been noticed by the late Prof. H. N. Moseley that the antennal sheaths of the female pupæ of the Emperor Moth had traces of pectination like those of the male pupæ, but to a less degree, although the female moth's antennæ are filiform. He concluded that the

ancestors of both sexes had pectinated antennæ, that the male had retained them, but they had degenerated in the female.

In fact, in the process of evolution, the males had progressed in the direction of attaining keener sense organs for the detection of the females and stronger powers of flight to pursue them in competition with other males, while the females had evolved larger bodies, a greater capacity for egg-laying and consequent increased sluggishness.

Consequently Prof. Poulton deduced that if the males of assembling moths emerged from their cocoons with all their powers complete they would readily detect and pair with any mature female of their own family close at hand, and the evolutionary history described would result in inbreeding. That the males were not endowed with their full powers until they had flown was an adaptation to avoid that danger.

Mr. Carpenter next dealt with the economic aspect of caterpillars and the great damage they would do if allowed to multiply unchecked. The College of Pestology had organised war upon the moth cocoons in Hyde Park and had done some good, but the amount of such work done by human beings was infinitesimal compared with what Nature does herself. Insectivorous birds, and seed-eating ones during the breeding season, destroy large numbers of caterpillars, while the little-known Ichneumon flies also do enormous good. There are about 1,200 species of ichneumons, all parasitic on caterpillars or other pests, and one—*Microgaster glomeratus*—accounts for about 90 per cent. of the Cabbage White larvæ, and so is the chief preserver of our cabbages.

Finally, the lecturer pointed out that the caterpillar and the insect naturally tried to maintain their position in Nature's scheme of things, and he described many interesting ways by which they achieved their end.

FUNGI AND DISEASES OF PLANTS.

The second ordinary meeting of the Winter Session was held in the Old Museum on Tuesday, 18th December, 1928, at 8 p.m., when Mr. A. E. Muskett, B.Sc., A.R.C.Sc. (Lond.) gave a lecture on the above subject. The President (Mr. D. J. Carpenter) was in the chair.

The lecturer stated that the green colour so characteristic of plants in general is due to a complex substance known

as chlorophyll, without which life on the earth, as we know it to-day, would not be possible. By means of chlorophyll present in the leaf, and sunlight, the plant is able to manufacture, from water and carbonic acid gas, sugars and starches which are further built up to form the gigantic number of even more complex substances necessary for life. The leaf is the chemical laboratory of the green plant, and one far more efficient than any built by man. Sunlight and chlorophyll may be set down as the keys of life as we know it to-day. Man is dependent upon the green plants for his very existence—he may eat his beef, but his beef once ate the grass. But, what of the fungi? Well, the fungi possess no chlorophyll—they cannot manufacture the sugars and starches necessary for life—if they are to live they must be provided with these things already made. In this way they resemble animals rather than plants. What would happen if the dead remained unchanged and the tree lay unaltered where it fell? What is it that removes the sites once animated with the pulse of life? It is the fungi and bacteria. They are always waiting, always ready to seize upon the castle deserted by its spirit. Thus, the king of the forest, be he oak or lion, will himself one day provide a banquet for the countless hosts, each striving with might and main to—live. Verily, there are two sides to life: the limits of complexity are realised by green plants and animals, only to be reduced to the simple substances from which they came by fungi and bacteria. Ashes to ashes is no mean jest—it is true. What blessings we owe to the lowly fungi!—they have formed the staple food of primitive tribes and the truffles still make an appetising bait for the discriminating epicure. Yeast is a fungus, a little of which leaveneth the whole. Where would be the homely bread that is made to rise before the kitchen fire—if yeast were not? If fungi were not with us, where would our fairies hide? For them no more the Elf Cup's shielding shade or the "Mushroom's" covering cloak when night alarms.

But stay! This mighty horde so anxious for attack, so eager for the fray, may bite too soon, and then we have—disease. Not content to wait till life has fled, the host must yield his banquet far too soon. Who has not heard of the dread potato blight caused by parasitic fungus of low degree, whose ravages brought famine to our land? In 1846 did Father Mathew not write:

"On July 27th I passed from Cork to Dublin, and the doomed plants bloomed in all the luxuriance of an

abundant harvest. Returning on August 3rd, I beheld with sorrow mere wastes of putrefying vegetation."

Who has not heard of old "Black Scab," the pirate chief whose very name strikes terror in the heart of County Down? When the investigator is in doubt, it takes a microscope to make him out. His size is not the quality which chills the farmer's bone. Rusts, smuts and mildews, all eloquently speak of life cut short or injured. The hordes increase, and as the years go by we have to fight our battles ever and unceasingly. Civilisation brings its joys; but with them comes the bitterness without which how could our joys be sweet? We do not shirk but fight bravely and oft succeed to poise the scales unevened by upsetting Nature's balance. The fight, it must go on and will be fought by our sons and theirs; but if it is help you need, some assistance in the fray, write to Agriculture's Ministry, which helps to guard you night and day. Her sons will do their best—they can't do more!

A discussion followed, in which the President, J. A. S. Stendall, A. M'L. Cleland, Miss Sayers, R. J. Welch, and A. H. Davison took part.

THE SO-CALLED VOLCANIC NECKS OF NORTHERN IRELAND.

The third ordinary meeting of the Winter Session was held in the Museum, College Square North, on Thursday, 10th January, 1929, when Dr. H. P. T. Rohleder delivered a lecture on the above subject. The chair was occupied by Mr. J. A. S. Stendall, in the unavoidable absence of the President.

The Lecturer gave the main problems as follows:—

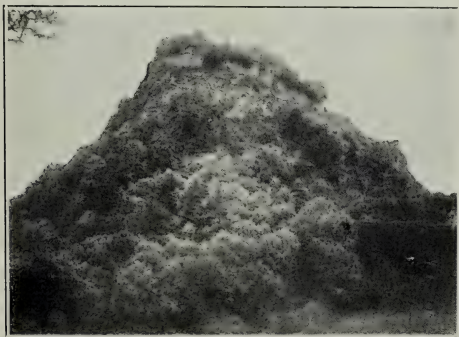
- I. What is the difference between the three geological terms: (a) Dyke, (b) Vent and (c) Neck?
- II. Is one justified in using the terms "Vent" and "Neck" in the same sense as has been done up to now in Northern Ireland?
- III. Are there any real "Necks" in North East Ireland, and if so, which have to be regarded as such?

I. (a) *Dykes* are the infillings of pre-existing fissures occurring as lines of a foreign material in the "country rock." The dyke rock frequently proves to be harder than this, and then weathers out as a wall.



1

The Tusi-Mountain, a 'Tuff Neck,' one of "Swabia's 130 Embryonic volcanoes," South Germany.



2

The "Hohentwiel," a phonolitic "Neck," in South Germany.



3

The "Hohenkrähen," a phonolitic Neck, in the Hegau Mountains, South Germany.

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NATURAL
HISTORY.

(b) *Volcanic Vents, or funnels*, are portions of the channels of communication between the subterranean reservoir and the surface of the earth. The upper end is frequently marked by a crater, but not necessarily so. *Thus a vent is no outstanding feature in the geomorphology of a district.* In the classical district of "volcanic vents," the 130 embryonic volcanoes of Swabia (Southern Germany), one can traverse the whole district (an area of a few hundred square miles) without noticing one of them, if one does not search carefully. And here one can study the different stages from the original crater to a neck, which *can* be formed when the weathering process continues.

Vents are not frequent in North East Ireland, but a good example is to be found at the well-known Chalk Quarry on the road from Portrush to Bushmills.*

The material which fills these vents in Northern Ireland varies largely and consists of—

(1) Innumerable lumps as big as a man's head, more or less cemented together. These are neither the ordinary plateau basalt nor a normal tuff, but are probably of explosive origin (e.g., the quarry between Portrush and Bushmills).

(2) Material which resembles tuff much more than (1), but even here large rounded fragments of basalt predominate although they are cemented into a tuff-like material (e.g., underneath Dunluce Castle).

(3) *Volcanic breccia*, containing large angular or sub-angular inclusions of basalt and sedimentary rocks, chalk in particular (e.g., Carrick-a-Rede).

(4) *Fine grained tuff*, consisting of small fragments of basalt in a white matrix (mostly powdered chalk) (e.g., Kinbane Head).

(5) *Crushed sediments*. Sedimentary material from an underlying stratum (chalk) crushed and powdered by volcanic force and thrown up a considerable distance with or without any added volcanic material (e.g., White Rocks, near Portrush).

(c) The ideal structure of a volcanic neck is seen at *the Hohentwiel* (Pl. I, Fig. 2), in the Hegau Mountains. It is the best example of a "neck" which can be found. The plug or vent of the volcano consists of hard phonolitic rock.

*Vide H. P. T. Rohleder. A Volcanic Vent in the White Rocks Quarry, Portrush, N. Ireland. *The Irish Naturalists' Journal*, Vol. I, 1926, p. 98-100.

standing out as a high mountain, whereas merely inconsiderable masses of tuff are to be found on the left side of the mountains, showing a smoother and less marked outline.

Another typical neck of the same district is shown on Pl. I, Fig 3, e.g., the steep crag of the Hohenkrähen, built up of phonolite, but without remnants of volcanic tuff or ashes.

Pl. I, Fig. 1, shows a "tuff neck" (the Tusi Berg near Metzingen, in Swabia). The original funnel shape of the vent has disappeared, and the hollow of former times now stands out as a mountain, the softer material on the flanks having been denuded away, i.e., *the vent has become a neck*. As the mountain consists of volcanic tuff, the slopes are smoother and give less marked outline than in the case of compact igneous rocks.

II. Thus two things are essential for a neck: (1) *a "neck" must be the former funnel of a volcano, and* (2) *a "neck" must be cut out of the neighbouring rocks as a circumdenuded remnant and thus be a dominating feature in the physiography of a district.* Thus every "neck" must be a former "vent," but certainly not every "vent" need be a "neck."

It is, therefore, evident that the terms "vent" and "neck" cannot be used to express the same geological feature, but that each of these terms has its own special meaning.

III. As regards the question whether there are any real necks in Northern Ireland, it is of great importance to have a look at their shapes.

Ballymoney Hill, near Holywood, called a "neck" by the Geological Survey of Ireland, is a small exposure of basalt, not even large enough to be called a quarry. The neighbourhood is absolutely flat, the place is only to be found with the aid of the Survey map, and that after long search. As this small outcrop appears in the Ordovician, it is probably a part of a dyke.

(b) *Colin Ward*, above Whitewell, is certainly not an outstanding feature in the neighbourhood of Belfast, and although the rock is of a somewhat coarse grain, the term "neck" is not applicable.

(c) *Carnmoney Hill*, up to now regarded as a "neck," is a flat mountain, outlines which are certainly not typical of a "neck." The exposure of a coarse grained rock, "patched" on to the south flank of Carnmoney Hill with its well-known jointing resembling horizontal columnar

structure could be explained by anomalous cooling in a primary hollow of the chalk.* But even if this were a part of a dyke or a vent, one is not justified in calling Carnmoney Hill a "neck," as expressing it in this way would mean that the mountain shape of Carnmoney Hill as a whole was due to the greater hardness of the infilling of a former vent, which is certainly not the case, as the hill itself is merely a remnant of a flow.

(d) *Carrick-a-Rede* is doubtless a "vent," as shown by the explosive material containing fragments of chalk. But as it is merely a cliff section and not an outstanding circumdenuded remnant, it is a "vent" and not a "neck."

(e) *Slemish Mountain* certainly resembles the shape of a "neck," as the dominating features of this hill are to be seen from many miles away. But it is difficult to prove its nature as a "vent," and as long as this cannot be done one is justified in regarding Slemish as a circumdenuded remnant of the lower (mostly coarse grained) basalt flows.

(f) The same is applicable to *Tiveragh*, near Cushendall, as in this district (the N.E. corner of Ulster) the basalt has been mostly removed by denudation, and there is no possible proof for a vent at Tiveragh.

(g) *Scawt Hill* is a doubtful case. As regards the shape, it is only "neck-like" from the east side, whereas it shows a gradual slope towards the inland. If the basalt really intersects the chalk, there is still the possibility of Scawt Hill being a part of a large dyke. In any case it is not a typical neck, but is merely a remnant left by the gradual process of denudation.

Summarising, one has to state that in no case can the "neck" nature of the so-called "necks" of Northern Ireland be proved. The basalts welled up the fissures, now dykes, as has been shown in the last decades in Iceland.

When the meeting was declared open for discussion, Professor Charlesworth remarked that Dr. Rohleder had discreetly omitted any reference to the facts which, in the past, have led all earlier workers, including Professors Cole and Hull and Sir A. Geikie, to refer these masses to vents, and to-day, represent insuperable objections to the thesis maintained by Dr. Rohleder, that they form merely residual features of post-basaltic erosion of the surrounding lava-flows. The

*H. P. T. Rohleder: Is Carnmoney Hill a volcanic neck? *The Irish Naturalists' Journal*, 1926 (Vol. I, pp. 159, 204).

localised distribution of the coarser types of igneous rock, seen for example at Slemish and Tiveragh, the radially arranged columns displayed at Carnmoney, and the absence of Chalk beneath the so-called basalt relic of Tiveragh, cannot be dismissed by Dr. Rohleder's assertions, for proof he furnishes none. To ascribe Tiveragh to such post-basaltic erosion of flows is to misread the whole of the physiographic history of the north-east of Ireland since before Cretaceous times. Until something in the nature of proof is forthcoming we may continue tranquilly to adhere to the orthodox view.

S. Turner (Junior), R. J. Welch and C. T. Ingold also took part in the discussion.

THUMBNAIL SKETCHES OF LARNE: PREHISTORIC, HISTORIC AND NON-HISTORIC.

The fourth ordinary meeting of the Winter Session was held in the Old Museum on Tuesday, 5th February, 1929, at 8 p.m., when Dr. S. W. Hill delivered a lecture on the above subject. The President (Mr. D. J. Carpenter) occupied the chair.

Dr. Hill dealt first with the Liassic period, and then went on to describe the mammoth age, lantern slides of mammoths' and wild boars' teeth, which had been found in the Larne district, being shown, as well as a set of views illustrating a fine collection of flint implements from the raised beach at Larne.

Explaining how the district got the name of Latharna, Dr. Hill said tradition related that an old king of Ireland had twenty-five sons and three daughters, and he divided his kingdom amongst them, giving one son named Lathar the district extending from Larne to Glenarm, and that district became known as Latharna.

The lecturer afterwards spoke of the association of St. Patrick with the neighbourhood, and told the old legend of his sale in the slave market in Larne to a Ballymena farmer, who for a number of years kept him herding sheep on Slemish Mountain. There was, said Dr. Hill, probably some truth in the old legend, as there was then a trade in slaves in Ireland. He mentioned a number of churches that had been founded in the district by St. Patrick, and views of existing churches built on those sites were shown.

The portion of the lecture dealing with the Norse invasion was illustrated by an excellent set of views of weapons

and ornaments found at Larne Harbour, and also the skull of a Viking who was supposed to have been killed in a naval battle at Larne Harbour in 1018.

Dr. Hill referred briefly to Dr. M'Henry, the bard of Larne, and author of "O'Halloran" and "The Hearts of Steel," and described also a noted local street character named Jimmy Gilgallion.

Explaining the origin of the Larne coat of arms, the lecturer said that a fully rigged barque belonging to a Mr. Thomas Dixon, the grandfather of the present Sir Thomas Dixon, Bart., was taken as a model. The motto, "Falce Marique Potens," meant "strong by the sickle and the sea."

The lecture was spoken to by the President and Messrs. J. Skillen, J. Loughridge, J. A. S. Stendall, G. C. Reilly, A. M'L. Cleland, and R. J. Welch.

PALÆOLITHIC MAN IN SLIGO?

At the fifth ordinary meeting of the Winter Session, held in the Old Museum on Tuesday, 19th February, 1929, at 8 p.m., Professor J. K. Charlesworth, D.Sc., M.R.I.A., delivered a lecture on the above subject. The President (Mr. D. J. Carpenter) was in the chair.

Professor Charlesworth recapitulated the evidence in support of the view, now universally accepted, that the whole of Ireland was completely buried beneath the ice-sheet of the Glacial Period. This glaciation was succeeded by a recession of the ice of unknown extent, which, after melting back the ice edge to a position somewhere in the region of the Central Plain, was in turn followed by an advance to a line drawn from Wexford to the mouth of the Shannon.

During the period of retreat, just mentioned, some of the Pleistocene animals, such as the mammoth, reindeer, and hyæna, inhabited the country; their remains have been found in a few caves in the extreme south, together with the bones of Upper Palæolithic Man.

The existence of Palæolithic Man at Rosses Point, Sligo, which has recently been affirmed, on the discovery of pieces of limestone, claimed to be human artifacts, is rather different from the southern Irish occurrences. The Sligo finds, if substantiated, would require not only an interglacial recession but a total removal of the ice from the country. This entire freeing of the country from ice is rendered necessary by the fact that Rosses Point lies only

some 30 miles from the main ice-shed of Ireland. Though such a complete disappearance is possible, something more in the shape of animal and human remains or beds of peat and vegetable matter is wanted to make it probable. It would seem, therefore, inadvisable to accept such a deglaciation of the country during glacial times until more convincing proof has been obtained.

An interesting discussion followed.

SOUTH AFRICA: ITS CALL TO THE NATURALIST.

The sixth ordinary meeting of the Winter Session was held in the Old Museum on Tuesday, 5th March, 1929, when Rev. W. R. Megaw, B.A., gave a lecture on the above subject. The President (Mr. D. J. Carpenter) presided.

The lecturer, introducing his subject, pointed out that South Africa is a high-level, plateau-like country, forty per cent. of it being 4,000 feet above sea level. The country rises rapidly from the coast towards the interior, very little more than the land in the immediate vicinity of the coast being less than 1,000 feet above sea level. This high, fairly level plateau is at an elevation about half as high again as the summit of Slieve Donard. The continent is practically without islands, and its rivers are torrents and dust beds in turn.

The huge magnitude of the country was dealt with, the bad roads and limited railways, the early hour of sunset even in summer, and the immense distances from residential to suitable hunting grounds.

Appreciative mention was made of the amount of good work done in Natural History in spite of the sparse European population and the late date of colonisation. After touching on antiquities and geology the lecturer said that South Africa was supremely a country for the zoologist and botanist.

A series of slides beginning with the Stormy Petrel and concluding with the Hornbill gave an idea of the variety in build, plumage, and habit of a few of the 1,000 species of South African birds. The only familiar birds seen by the lecturer were Swallows at Port Elizabeth and three House Sparrows at Durban—the most English town in the Union!

The audience was then shown some very interesting pictures of frogs, from the Bull-frog (7 inches long), down through the Arum frog (1 inch) to the Micro frog, no bigger than a bluebottle fly.

A word on butterflies followed, then a more detailed account of the egg-eating Snake with its wonderful appliance for sawing the shell of a pigeon's egg. Trap-door Spiders, Glove-weaving and Trap-door Caterpillars were described, and a tribute paid to Mr. Frank Cruden, the discoverer of the Glove Moth. Mr. Megaw had the pleasure of several rambles with Mr. Cruden.

Mention was then made of the beauty, variety and unfamiliarity of the flora. Only three homeland plants were seen—Ribwort Plantain, Chickweed and Lesser Duckweed. This last affords welcome shade to young fish.

Fourteen slides of typical flowers gave the audience an idea of the wealth of colour and form of the extensive flora of the Union. The South African is jealous of the magnificent flora of his country, and most of the wild flowers are strictly protected. The lecturer concluded with a description of the beautifully appointed grounds and pond at the Union Buildings, Pretoria, where the blue lotus lily is bathed in continual sunshine.

A discussion followed, those taking part in it being the President and Messrs. J. Skillen, A. M'L. Cleland, R. S. Lepper and R. J. Welch.

LOCAL TEXT-BOOK ILLUSTRATIONS IN GEOLOGY.

At the seventh and concluding ordinary meeting of the Winter Session, held in the Old Museum on Tuesday, 26th March, 1929, Mr. R. J. Welch, M.Sc., M.R.I.A., gave a lecture on above subject.

Synopsis:—Aqueous Rocks—Igneous Rocks—Stratified rock sections, vertical, inclined, contorted, &c.—Atmospheric denudation, joints—river action—Pot-holes—Glaciers, erratics, moraines, faults—Landslips—Marine erosion, caves, marine pot-holes, sea stacks—block beaches, &c., sandhills—Volcanic sheets and dykes, columnar basalt and other lavas—Peat, and other recent deposits.

ANNUAL MEETING.

The Annual Meeting was held in the Museum, College Square North, on Tuesday, 16th April, 1929, at 8 p.m., the President (Mr. D. J. Carpenter) in the chair. The following Reports were presented:—

ANNUAL REPORT.

The Committee has pleasure in submitting its Sixty-sixth Annual Report as follows:—

During the year 46 Ordinary Members resigned and 7 died. The names of several members whose subscriptions were unpaid for two years have been removed from the roll in accordance with Rule III.

Forty-eight Ordinary and 34 Junior Members were elected. The membership now consists of 9 Honorary, 1 Corresponding, 2 Life, 543 Ordinary, and 95 Junior, making a total of 650.

Twelve meetings were held during the year, at which the attendances were:—

Robert Bell	...	10	R. S. Lepper	...	8
S. A. Bennett	...	0	Rev. W. R. Megaw	...	9
A. A. Campbell	...	12	A. E. Muskett	...	6
D. J. Carpenter	...	10	C. R. Nodder	...	12
E. N. Carrothers	...	6	Mrs. Nodder	...	11
Capt. Chase	...	6	James Orr	...	7
A. M'I. Cleland	...	8	Miss Rea	...	8
W. M. Crawford	...	9	Miss Sayers	...	10
A. H. Davison	...	12	J. Skillen	...	11
S. Freeland	...	9	J. A. S. Stendall	...	12
J. R. H. Greeves	...	6	R. J. Welch	...	7

Eleven Summer Field Meetings were held:—

		Conducted by	
Cave Hill (evening)	22nd May, 1928	The President.	
Portmore	2nd June	Sectional Secretaries.	
Carngaver ($\frac{1}{2}$ day)	16th June	Capt. C. D. Chase.	
Monlough (evening)	19th June	S. Freeland and J. A. S. Stendall.	
Bessbrook	30th June	The President and W. A. Green.	
Dublin	12th to 14th July	R. J. Welch and A. W. Stelfox.	
Scarva ($\frac{1}{2}$ day)	21st July	A. Albert Campbell and Col. R. G. Berry.	
Arboe and Toome	4th August	Joseph Skillen.	
Greencastle	1st September	R. J. Welch.	
Craighuliar Quarries	8th September	A. Mcl. Cleland.	
Mountstewart ($\frac{1}{2}$ day)	15th September	A. E. Muskett and E. N. Carrothers.	

On each occasion large numbers attended, and the Club was favoured with fine weather.

Each of the Sections also held Field Meetings, which will be separately reported upon.

On 11th September the Honorary Secretaries resigned, and Mr. Joseph Skillen was appointed to act as Hon. Secretary *pro tem*.

The Annual *Conversazione* was held in the Assembly Hall, Fisherwick Place, on 16th October, and was largely attended by members and their friends.

The Club Medal having been awarded to Mr. R. J. Welch, M.Sc., M.R.I.A., the President, in handing it over, paid a high and deserved tribute to Mr. Welch for his work on behalf of Science.

Seven meetings were held during the Winter Session, when the following Addresses were delivered:—

1928.

November 20 ... Presidential Address.

December 18 ... Fungi and Diseases of Plants.

A. E. MUSKETT, B.Sc., A.R.C.Sc. (Lond.).

1929.

January 10 ... The So-called Volcanic Necks of
Northern Ireland.

H. P. T. ROHLER, Ph.D.

February 5 ... Thumbnail Sketches of Larne: Pre-
historic, Historic, and Non-Historic.
Dr. S. W. HILL, Larne.

February 19 ... Prehistoric Man in Sligo?

J. K. CHARLESWORTH, D.Sc., M.R.I.A.

March 5 ... South Africa: Its Call to the Naturalist.
Rev. W. R. MEGAW, B.A.

March 26 ... Local Text-Book Illustration in Geology.
R. J. WELCH, M.Sc., M.R.I.A.

The attendance at these meetings was most encouraging, and interesting discussions followed the delivery of the addresses.

We desire to express our thanks to the following for courtesies extended in connection with our Field Meetings:—Mr. M'Williams, Monlough; Mrs. Williams and Mrs. Richardson, Bessbrook; Miss Barcroft, Newry; Mr. Brunner and Mr. Gorman, of the Dublin N.F. Club; Mr. H. B. Thompson, Searva; Mr. Christopher Beatty,

J.P., Coalisland; Mr. H. L. Glasgow, Cookstown; and Lady Londonderry. We also acknowledge our indebtedness to the Press for giving publicity to our activities, and to the local Railway Companies for facilitating our transport arrangements.

D. J. CARPENTER, *President*.

JOSEPH SKILLEN, *Hon. Secretary*.

DECEASED MEMBERS.

A. Cousins.
R. H. Gilliland.
C. J. Knox.
James Lowry.
A. MacCleary.
Stephenson M. Macoun.
W. G. Younge.

HON. LIBRARIAN'S REPORT.

With the transfer of the Club's Library to the Public Museum the Librarian's work is restricted, so far as the Club itself is concerned, to the receipt, registration, and acknowledgement of the Proceedings received from Exchanging Societies. The usual list of such Societies will be found at page 77.

It may be of interest to members to hear that, at the request of the Curator, I have undertaken the work of putting in order the Library at the New Museum. I have made a commencement of the work of preparing for binding the many bundles of Proceedings of Exchanging Societies which formerly filled our bookcases. When bound they will be rendered much more useful.

W. M. CRAWFORD, *Hon. Librarian*.

REPORT OF HON. RECORDING SECRETARY.

The year 1928 will long be remembered in Northern Ireland for its chilliness and abnormal rainfall. Our average annual precipitation is 32 inches, whereas 1928 gave a reading of 41.09 inches, recorded at Armagh Observatory. August being the wettest month with 6.92 inches.

Notwithstanding, recorded phenological dates show no great variation from other years, though flowers were somewhat backward and there was little ripening of soft fruits, the blackberry crop failing entirely.

There is no use here giving phenological records, as such already have appeared in print in *The Irish Naturalists' Journal*, Vol. II, No. 7, and are available to all members.

Noteworthy bird notes for the year include the recording of the White Wagtail, *Motacilla a. alba* L., on the south shore of Lough Neagh, 30th April, 1928, by Mr. J. A. Benington (*I.N.J.* II, 55), and of a flock of Black-tailed Godwits, *Limosa l. limosa* (L.) in the same district, also by Mr. Benington (*I.N.J.* II, 91).

Mr. Benington is to be congratulated on proving beyond doubt that the Pintail, *Anas a. acuta* L., may be claimed as an Irish breeding species. He found a nest in County Armagh last year, and on sending an egg and down feathers to the British Museum the species proved to be Pintail. There are two previous records of Pintails which were supposed to have bred in Ireland, but this is the first authentic instance.

A Wigeon, *Anas penelope* L., was obtained on Lough Erne on 1st August, 1928, a suspiciously late date for a winter migrant to be found in this country. (*I.N.J.* II, 110.)

A Corncrake was observed in Ormeau Park, Belfast, on 9th December, 1928, during snowy weather, thus proving once again that this bird does sometimes stay in Ireland during the winter months (*I.N.J.* II, 161).

On 14th December a fine male Common Bittern, *Botaurus s. stellaris* (L.), was caught alive at Ballyrea, near Newtownards.

On March 7th, Mr. W. G. Byron, of Castlerock, discovered a Giant Squid washed up by the sea, which had a total length of 5ft. 8in, the long arm (one was wanting) being 2ft. 10½in. The body girth was 22in. The animal was forwarded to the British Museum authorities, who pronounce it to be a species of the genus *Sthenoteuthis*, and probably *S. pteropus*, recorded from Ireland but twice previously—on the coast of Mayo and of Clare. Full details when available will be given in *The Irish Naturalists' Journal*.*

**I.N.J.*, Vol. II, p. 181.

Districts in Co. Fermanagh were visited last summer by swarms of caterpillars of the Greasy Fritillary butterfly, *Melitaea aurinia* L., which caused much alarm but little harm; while another form of visitation took place at Comber, where a shower of Sticklebacks was reported, due to a whirlwind.

The visit to Northern Ireland of the British Bryological Society naturally added to the moss and hepatic lists. Of Mosses 58 new county records are reported, including six species and six varieties new to Ireland. There are 17 new county records of Sphagna and 63 new county records of Hepatics, one being new to Ireland. These finds were made in Northern Ireland and Counties Leitrim and Sligo, and are fully reported by the Hon. Recording Secretary of the B.B.S. (Mr. J. B. Duncan) in *I.N.J.* II. 112.

J. A. SIDNEY STENDALL, *Hon. Recording Secretary.*

REPORT OF BOTANICAL SECTION.

The number of members joining the Botanical Section was forty-nine. Six excursions were held as follows:—May 19th, Ballywalter; June 5th (evening), Colin Glen; June 12th (evening), Col. F. H. Crawford's Rock Garden; June 23rd, Conlig; July 7th, Larne and Magheramorne; September 22nd, Church Island (Lough Beg). The last was a joint excursion with the Archaeological Section. The average attendance at excursions, including visitors, was about twelve.

Among the more interesting plants observed during the excursions the following may be noted:—

Ballywalter—*Vicia lathyroides* (Spring Vetch), *Cerastium semidecandrum*, *Chærophylum anthriscus*, *Scilla verna* (Vernal Squill).

Colin Glen—*Equisetum trachyodon* in its old station; *Carex pendula*.

Conlig—*Gymnadenia conopsea* (Fragrant Orchid), abundant; *Botrychium lunaria* (Moonwort), about 12 specimens; *Pyrola media*.

Magheramorne—Only two specimens of Bee Orchid could be found after a thorough search.

Larne—*Lepidium* sp. (alien), in railway sidings.

Church Island—*Rhamnus catharticus*, *Callitriche autumnalis*.

We are indebted to Capt. Chase for guiding us to several interesting localities.

C. R. NODDER, *Hon. Secretary.*

REPORT OF GEOLOGICAL SECTION.

The Section made four excursions during the Session to the following places:—Ligoniel and Forth River, Cavehill Quarry, Cloughwater and Ballycloughan, and Craighuliar and Portrush.

At Ligoniel a careful inspection was made of the recently discovered dyke of "White Trap" or "White Basalt," an illustrated account of which appeared in *The Irish Naturalists' Journal* for July, 1928 (Vol. II, p. 75).

On the Forth River the principal points noted were the fine cliff of basalt and the excellent exposure of gypsum in Triassic marls, both these to be observed on the left bank of the river.

At the visit to Cavehill Quarry the many points of interest in this well-known exposure were noted and specimens obtained.

The excursion to Cloughwater and Ballycloughan was most successful, and the journey, being made by charabanc, was accomplished with the minimum of fatigue.

In addition to visiting the rhyolite quarries at Cloughwater and Ballycloughan, and bringing away very good specimens, the party inspected the basalt quarry at Killyflagh and an interesting esker at Moatown.

When making the excursion to Craighuliar the members were met at Portrush by Mr. W. A. Traill, Managing Director of the Causeway Tramway Co. (the premier electric tramway of the world), who accompanied the party to the quarry and introduced them to the genial manager, Mr. A. McDonald, who paid them every attention.

A. M ^r . I. CLELAND,	}	<i>Hon. Secretaries.</i>
R. BELL,		

REPORT OF ZOOLOGICAL SECTION.

During the past year a good deal of collecting was done on the summer excursions, especially on that to Portmore, but the results have not yet been fully worked out.

An interesting phenomenon was brought to the notice of the Secretary some time ago, which is worthy of record.

In the Sixtowns district of Co. Tyrone a willow tree growing by the roadside became known locally as the "honey-bush" on account of the strong smell of honey which emanated from it. A close search was made in the stem of the tree and in the neighbouring bank for bee's "bikes" or stores of deserted honey but without avail. Further examination showed that the scent was due to copious exudations of "honey-dew" from myriads of aphides on the tree.

J. ORR, Hon. Secretary.

REPORT OF ARCHÆOLOGICAL SECTION.

During the past summer there were four excursions. The first was to Glenarm by motor coach. On reaching Glenarm a severe thunderstorm took place, but the party was then enjoying the hospitable shelter of the Antrim Arms Hotel. No rain subsequently disturbed the comfort of the afternoon, although many heavy thunder showers were travelling around. The site of the ancient Friary in the parish churchyard was visited, as was the Barbican Tower, with its collection of antiquities, and the gardens of Antrim Castle. Mr. John Clarke and Mr. Wall, of the estate office, are to be thanked for their assistance on this occasion.

The second visit was to Shane's Castle by rail to Antrim and then by the large and commodious motor boat now cruising each summer on Lough Neagh. The party embarked on this boat at Massereene Park, and on returning from their visit to the Castle had a delightful though short water trip up the Sixmile River.

The third excursion was a very interesting one, being a visit to Church Island, Lough Beg. Motor coach was taken to Ballyseullion, Co. Derry, and by row boat over the flooded meadows to the island. The Holy Well and ruined church were examined with interest, and Capt. Chase found on the island a rare shrub, the Purging Buckthorn. Our thanks are due to Mr. Grant, of the O'Neill Arms Hotel for arranging the water transport.

The last excursion was held jointly with the Junior Section, being a ramble through Old Belfast. Mrs. Nodder, the Junior Section Secretary, had her charges there in large numbers, and the Archæological Section was also freely represented. The ramble started at the Old Carrickfergus coach road (now North Queen Street), visited the old Shankill Graveyard (site of the ancient parish church), examined the watch house used to circumvent the activities of the resurrec-

tionists, and the Bullaun Stone at the door of St. Matthew's Church, used until lately as a pin well. The excursion fitly terminated at the parish church, the new Cathedral of St. Anne's.

No winter meetings were held during the Session. At present there are 72 names on the roll of the Section.

JOSEPH SKILLEN, *Hon. Secretary.*

REPORT OF JUNIOR SECTION.

The number of Junior members now on the list is 95. Of this number 34 have been elected this year. Seven members have been transferred to the Senior members' list.

Prior to the introduction in April, 1928, of the rule requiring Junior members to pay a subscription the number of members was 105.

The task of running the Section is made enjoyable by the consistent enthusiasm of a number of Junior members and by the extreme willingness of the most learned naturalists in the Club to help the Juniors.

The average attendance at summer excursions was about eighteen, and at winter evening talks about twelve. The thanks of the Junior Section are due to Mr. J. A. Benington, Miss Rea, Mr. Angus Macdonald, Mr. J. A. S. Stendall, Dr. Adelaide Davin, Mr. E. N. Carrothers, the Vice-President, the President, Mr. J. R. H. Greaves, Mr. J. Skillen, Mr. R. J. Welch, Mr. Robert Bell, and Mr. A. A. Campbell for leading the excursions. These were varied and interesting. Only two were spoiled by bad weather.

May 26—Gulls' nesting place near Derrytrasma.

June 9—Seaweeds at Carnalea.

June 27—Antiquarian walk through Mallusk and Roughfort.

July 7—Old Lambeg, and a talk on plant breeding at the Linen Research Institute.

July 28, September 8, October 6—Survey excursions to Colin Mountain top. There were also some other small excursions attended by only three or four members for their own collections.

August 11—General excursion to Carnalea as guests of Mr. Lepper.

September 29—Antiquarian walk around Old Belfast.

March 9—Excursion to pearl mussel beds, Holywood.

March 23—Excursion to a series of interesting geological sites between Belfast and White Mountain, also Castle Robin.

For talks given in the Old Museum through the winter the Section has to thank the President, the Vice-President, Capt. Chase, Mr. W. M. Crawford, Mr. Reilly, Mr. Angus Macdonald, Mr. Welch, and Miss Nora Fisher, all of whom spared no trouble in giving the talks, always along with demonstrations. The subjects of the talks were Fossils, Elements of Field Botany, Plant Mounting, Insect Mounting, Beetle Collecting, Flints and Making of Apparatus for Collecting and Preparing Shells.

The Junior Section is grateful to Mr. R. S. Lepper, Dr. Adelaide Davin, Mrs. Scott, of Roughfort, and Mr. and Mrs. R. V. Cleeland for their kind hospitality during the season.

An interesting feature of the Junior Section is the tendency of the individual members to specialise in one or two branches of Natural History. Few, even of the youngest, will bring home a mixed bag of specimens. I am told by those who know that some of the more advanced specialists among the Junior members have in their own subjects a really sound foundation of knowledge, which they owe largely to the painstaking teaching of our President.

A modest beginning in regional survey was attempted in September and October on a limited area of Colin Mountain top.

Ten Junior members took each a section of the survey, and undertook to get the specimens named and to compile a list.

About fifteen other Junior members helped in the collecting and gave or described their finds to the one in charge of that particular section. An excellent spirit of team work showed itself, as some of the hardest workers were not in the least discouraged when they found they gained no personal glory by their finds. Another piece of team work is being carried out by Miss Fisher, Mr. John M'Williams and Mr. Ranald Macdonald. These three are seriously collecting land and sea water shells, and they made a joint exhibition at the *Conversazione*. A small but growing number of Juniors possess and use Stewart & Corry's Flora of N.E. Ireland.

Some parents and friends of the Junior Section have sometimes attended the excursions and talks. Their presence has been most welcome and often of great assistance.

The Junior Committee functions well, and is outspoken in the interests of Junior members. There have been four meetings in the season, the attendances being as follows:—The President, 3; Vice-President, 2; Angus Macdonald, 4; Miss N. Fisher, 0; Miss Phyllis M'Kee, 0; Miss N. Stendall, 4; Mr. Jack Blair, 4; Mrs. Nodder, 4.

Although there were entries of the highest merit for the prizes offered for the year's work there were only two or three for each prize. In view of the large amount of work done this is surprising, and suggests that Junior members need to be encouraged to submit their work for competition for prizes.

A large number of Junior members attended the *Conversazione*. The exhibits of the year's work seemed to be of great general interest. A few exhibits gave evidence of outstanding serious individual work.

WINIFRED NODDER, *Hon. Secretary.*

Dr.

Hon. Treasurer's Account for the Year ending 31st March, 1929.

Cr.

Balance from year 1927-28	£111 17 11	Expenses of Conversazione	£11 9 10
Subscriptions received, including Arrears—		Advertising of Conversazione	3 3 4
444 at 6/-	133 4 0	Postage	27 16 11
48 at 5/-	12 0 0	Hire of Museum Rooms	2 15 0
Subscriptions paid in advance for Year 1929-30—		Hire of Lantern	4 0 0
3 at 6/-	0 18 0	Printing and Stationery	40 12 8
1 at 5/-	0 5 0	Cost of Proceedings	35 0 0
40 Entrance Fees at 5/-	10 0 0	Subscription to <i>English Naturalist</i>	1 10 0
Balance from Excursions	23 14 9	Affiliation Fee <i>Irish Naturalists' Journal</i> , 1927-28	6 0 0
Sale of Proceedings	0 8 8	Subscription to Graham Fund	2 2 0
Interest received from Bank for Deposit Account	1 1 3	Subscription to Adams Collection	5 0 0
		Grant to Junior Section	2 2 0
		Expenses of Bryological Society's Visit to Belfast	9 19 0
		Gratuities	1 10 0
		Addressing Circulars and Clerical Assistance	16 11 0
		Incidental Expenses:—File for Correspondence,	
		Survey Map, Engraving Medals, Wreath,	7 13 0
		Typing Circulars, Cheque Book, Club Prizes	116 4 10
		Balance carried forward to next Account	
	£293 9 7		£293 9 7

Audited and found correct. Balance in hands of Honorary Treasurer, One Hundred and Sixteen Pounds Four Shillings and Tenpence.

A. ALBERT CAMPBELL.
THOMAS EDENS OSBORNE.

April 10th, 1929.

The following office-bearers were elected for the Session 1929-30:—President, Miss W. J. Sayers; Vice-President, Captain C. D. Chase; Honorary Secretary, J. Skillen; Honorary Treasurer, A. H. Davison; Honorary Librarian, W. M. Crawford; Honorary Recording Secretary, J. A. S. Stendall; Honorary Secretaries of Sections—Botanical, C. R. Nodder; Geological, Robert Bell and A. M'L. Cleland; Zoological, J. Orr; Archæological, J. Skillen and S. Freeland; Junior, Mrs. C. R. Nodder. Ordinary members of Committee (to fill vacancies)—(to retire 1931) R. V. Cleland; (to retire 1932) D. J. Carpenter, E. N. Carrothers and C. E. Kerr.

CLUB MEDALLISTS.

1923—William Swanston, F.G.S.

1924—Nevin H. Foster, F.L.S., M.R.I.A., M.B.O.U.

1925—Nathaniel Carrothers.

1926—Robert Bell.

1927—R. Lloyd Praeger, D.Sc., M.R.I.A.

1928—R. J. Welch, M.Sc., M.R.I.A.

Mr. R. J. Welch, it can safely be said, is the best known person among the Club's hundreds of members, and furthermore is almost equally well known throughout the length and breadth of Ireland and not unknown elsewhere.

Mr. Welch's interests have been, and still are, many. Throughout his long and honourable life he has possessed an insatiable appetite for work. The sciences of Zoology, Botany and Geology have been as food to him, while Archaeology has been the dessert which has followed. As a nature photographer he remains unsurpassed, and as a lecturer he has won golden opinions.

His fund of knowledge has been gathered at first hand, for in the field he has been and still is a most enthusiastic and happy worker. There is no branch of Field Club work which has not benefited by Mr. Welch's activities. He has been associated with many faunistic surveys, including that carried out by the Royal Irish Academy on Clare Island.

He has paid particular attention to the study of mollusca, especially the land and freshwater mollusca of Ireland, and has added many records.

His contributions to the literature of Science and Archæology have enriched the pages of innumerable journals,

while his incomparable photographs have been used to illustrate many important monographs, text-books, and reports.

In 1900 he was honoured by Her Majesty Queen Victoria in being appointed her Natural History and Ethnographic Photographer in Ireland.

In 1923 he had the honour of being President of the Conchological Society of Great Britain and Ireland, this being the first time for an Irishman to occupy the office. He has been a life member of the Royal Irish Academy since 1905, and in 1925 the Queen's University of Belfast thought fit to honour him with the degree of Master of Science (*Honoris Causa*).

Of our own Club he is a past President and Honorary Secretary, and has been an active member of Committee for many years.

Junior members have always had in Mr. Welch a warm friend.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB.

For the Year Ending 31st March, 1930

(SIXTY SEVENTH YEAR).

SERIES II.
VOLUME IX.



PART II.
1929-1930.

EDITOR:

W. M. CRAWFORD, F.E.S., F.Z.S.

Belfast Naturalists' Field Club.

SIXTY-SEVENTH YEAR, 1929-30.

GENERAL COMMITTEE.

President:

Miss W. J. SAYERS, B.A.

Vice-President:

Capt. C. D. CHASE, M.C., M.A.

Hon. Treasurer:

A. H. DAVISON, F.R.S.A.I., 32 Wellington Place, Belfast.

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J. A. S. STENDALL, M.R.I.A., M.B.O.U., Deva, Haypark Avenue, Belfast.

Hon. Secretary of Botanical Section:

C. R. NODDER, M.A., The Corner House, Lambeg.

Hon. Secretaries of Geological Section:

ROBERT BELL, 64 Newington Avenue, Belfast.

A. M'L. CLELAND, 28 Green Road, Knock, Belfast.

Hon. Secretary of Zoological Section:

JAMES ORR, M.B.O.U., 17 Garfield Street, Belfast.

Hon. Secretaries of Archæological Section:

JOSEPH SKILLEN, 25 Stranmillis Gardens, Belfast.

S. FREELAND, The Museum, Stranmillis Road, Belfast.

Hon. Secretary of Junior Section:

Mrs. C. R. NODDER, The Corner House, Lambeg.

Ordinary Members of Committee:

Retire 1930.

Miss W. M. Rea, M.Sc.
Rev. W. R. Megaw, B.A.,
M.R.I.A.
R. J. Welch, M.Sc.,
M.R.I.A.

Retire 1931.

A. Albert Campbell,
F.R.S.A.I.
R. V. Cleeland.
R. S. Lepper, M.A.,
LL.M., F.R.HIST.SOC.

Retire 1932.

D. J. Carpenter,
A.R.C.SC.L.
E. N. Carrothers.
C. E. Kerr, B.A.,
F.R.S.A.I.

Hon. Secretary:

JOSEPH SKILLEN, 25 Stranmillis Gardens, Belfast.

PROCEEDINGS.

SUMMER SESSION.

PURDYSBURN GLEN AND MEALOUGH.

Date—28th May, 1929 (Tuesday evening). Conductor—J. A. S. Stendall, M.R.I.A., M.B.O.U. Number present, 68.

Permission to enter Purdysburn Glen, kindly granted by Mr. James Harpur, was fully appreciated by a large band of members, among which the Junior element was largely represented. Entering by the main gate the members were quickly exploring the woodlands, richly bedecked with early flowers; passing to the open glade where all were soon at work collecting. Some members chose the Burn itself as their hunting ground, from which mollusks and other dwellers therein were taken, to be identified and explained. The botanists, although they did not find anything of special note, had an interesting time and found much to discuss.

The return was *via* Mealough, where the migrant birds gave a greeting, passing on to the Saintfield Road and a steady three miles tramp in the gathering gloom.

LARRIBAN CLIFFS AND BALLINTOY.

Date—8th June, 1929. Conductors—Rev. E. M. Gumley, B.D., and R. J. Welch, M.R.I.A. Number present, 40.

A large party of members left Belfast by the 9.15 train for Portrush.

On arrival there, they got into motor charabanes, and, joined by 7 or 8 other members and Mr. J. J. Phillips, F.R.S.A., a former member of the Club now resident at Portrush, were soon on their way to Dunluce Castle, the first stopping place.

The repairs now being effected by the Ancient Monuments Department of the Ministry of Finance were inspected, Mr. Welch, conductor for this part of the tour, pointing out the various interesting details that had been discovered during the late excavations, *viz.*, the laying bare of the original flagging and other pavements of the various buildings and courtyards on the rock.

Leaving Dunluce, the party were soon running along above Whitepark Bay, and were not long reaching Ballintoy Harbour, where they were met by an old member of the Club, Mr. W. A. Traill, managing director of the electric railway. Mr. Traill led the party down to the harbour, where he showed them two very large Ammonites on rocks at Port Campy. Here the party scattered for lunch all over the little swards under the cliffs, which, with some big caves, gave the party shelter while a smart shower passed over. At the inner end of one of the caves there is a well supplying some fisher folk families close at hand. This was, of course, inspected and some nice specimens of the Marine Fern (*Asplenium marinum*) were noticed high up in the roof.

After the shower cleared off Dr. J. Wilfrid Jackson, M.Sc., F.G.S., of Manchester Museum, ex-President of the Conchological Society, a visitor with the party, gave a lucid description of some interesting geological features near the harbour, including a large area of slickenside, a curious rock surface, caused by large masses of rock in earth movements sliding against each other with terrific pressure, and heat caused by the friction.

The party then split into three, the younger more energetic members going off with the Rev. E. M. Gumley, B.D., the hon. secretary of the affiliated club, the Route N.F.C. (who was the local conductor for the Ballintoy section of the tour) to climb down the cliff path at Larriban Bay to the stalactite and fern caves.

Another party went under Mr. A. A. Campbell's guidance to see the ancient memorials of the Stewart and other families at the church, while a third climbed down into Boheeshane Bay with Mr. Welch to see marine shell crypts and a fine example of a badger's earth.

A party of 14 members of the affiliated Route Naturalists' Field Club had joined the parent club party at the school-house on the way down; they had tea earlier and departed for Coleraine before the Belfast party.

The President of the Belfast club, Miss W. J. Sayers, B.A., held the usual business meeting after tea, and welcomed Dr. J. W. Jackson. After four new junior members had been elected, Mr. A. A. Campbell moved and Mr. Robert Bell seconded, "that the best thanks

of the party and the club generally be conveyed to the Ministry of Finance for their care of our national monuments and the careful way in which the Ministry's Works Department are carrying out necessary repairs for their safety." Captain Fullerton was also thanked for services rendered the party during their visit, and for his care of that fine sanctuary of the old Irish fauna and flora, Whitepark Bay, a fine hunting ground also for the pre-historian and geologist.

MAGHERA AND DISTRICT.

Date—Saturday, 15th June, 1929. Conductors—Rev. Dr. Marshall and A. A. Campbell. Number present, 36.

Members, in charge of Mr. A. Albert Campbell, F.R.S.A.I., journeyed to Maghera, County Derry. Others joined the party from Belfast, Macosquin, Cookstown, and Kilrea. The Rev. Dr. Marshall acted as conductor for the day.

The ruins of St. Lurach's Church and his grave in the adjoining churchyard were first visited. The church is a simple, oblong building, of which the east wall is almost gone. The doorway was evidently constructed before the days of arch building, as it has jambs sloping inwards from bottom to top, surmounted by a single-stone lintel, ornamented with beautiful relief carving representing the Crucifixion. The Saint's grave is marked by a low headstone, which has a wheel-cross incised on it.

Proceeding to Tirnoney, about a mile north-west of the town, a fine dolmen was visited. A kistvaen is attached to it. On a hill close by could be seen an earthen ring fort.

A short distance farther on are the ruins of the church of Killelagh, apparently of about the same age as St. Lurach's. St. Keiran, whose name is preserved in the neighbouring townland of Tullykeeran, was its patron saint. On the way to it, at the side of a field, a bullaun stone was noted, and lying against the boundary wall of the church was a curious flagstone with two basin-shaped cavities, or bullauns, hollowed out of it and placed close together.

Killelagh Lough, where two botanists of the party, Mr. Megaw and Captain Chase, found a rare little sedge (*Carex teretiuscula*), was passed on the way to the Sweat-house in the townland of Tirkane. It is an oval-shaped mound built against a steep rocky bank in a lonely glen. The entrance

is about two feet high and a foot and a half wide. It has an oblong chamber eight feet long, built with unhewn stones. At the upper end is a hole in the roof, which can be covered by a stone. The procedure for a bath was as follows:—Turf was piled inside and the fire kindled and allowed to burn down. The interior became like a baker's oven. The ashes were then swept out, the bather crept in, and a large flat stone was placed against the door. After an interval of about an hour the bather crept out again and plunged into a pool of water some eighteen feet away. This treatment, a precursor of the modern Turkish bath, was supposed to cure rheumatism. The sweat-house yielded a fine zoological specimen—the cave spider (*Meta menardii*), believed to be the first record for County Londonderry; and the botanists found in the glen the thistle, *Carduus pratensis*, and the rare little orchid, *Habenaria albida*.

On the return to Maghera, a business meeting was held, the President (Miss W. J. Sayers, B.A.) in the chair, when a member was elected to the junior section, and a vote of thanks was accorded to Dr. Marshall for his assistance as conductor.

BELVOIR PARK.

Date—Tuesday evening, 18th June, 1929. Conductors—Rev. W. R. Megaw and J. A. S. Stendall. Number present, 130.

A large party of members and friends of the Club visited Belvoir Park by permission of Mr. J. H. Burke Murphy, J.P.

Proceeding through Newtownbreda village to the main entrance to the demesne, the conductors led the way along the avenue to the mansion house, erected by the Hon. Arthur Hill Trevor, afterwards Viscount Dungannon. The "big oak," from which, in 1885, Sir Robert Bateson took his title of Lord Deramore, was pointed out. Afterwards the old graveyard containing the site of the ancient Church of Breda was visited, and beside the Dungannon vault Mr. A. A. Campbell, at the request of the conductors, gave a short resume of the history of the Hill Trevor family, and mentioned that the first Lord Dungannon's daughter, Anne, after whom Annadale was named, married Lord Mornington, and was the mother of the great Duke of Wellington. Part of the future Duke's boyhood was spent at Annadale Hall, where his mother resided in the early years of her widowhood.

Proceeding, the party traversed the old rock garden, still showing traces of a former wealth of flowering shrubs and Alpines, and again passing the mansion house arrived at the large earthen burial mound. Mr. Campbell explained that these sepulchral tumuli, generally the graves of great chiefs, were held in veneration, and were the recognised places for religious and deliberative assemblies in primitive times. Consequently they would become centres of population, and for the convenience of this population the early Christian missionaries erected churches close by. This accounted for the frequently close proximity of ancient churches and sepulchral mounds—e.g., at Knock, Drumbeg, Dundonald and Holywood. When Belvoir demesne was formed in 1740 the old village settlement was removed and the new town of Breda (Newtownbreda) came into existence.

Passing on from the mound, a path skirted by the giant hog weed was followed, and the party made its way through thickets to the old cart road leading to an exit from the park.

The botanists found the following:—Bitter Cress, *Cardamine amara*; Sandwort *Arenaria trinervis*; Bird's-nest Orchis, *Neottia nidus-avis*; Tutsan, *Hypericum androsæmum*; and Sedge, *Carex riparia*.

Of birds, the Grasshopper Warbler was heard.

Rain rather spoiled the enjoyment of the evening, but the beauties of the great park even on the showery evening were a revelation to many who had never previously been inside the walls.

RAM'S ISLAND, LOUGH NEAGH.

Date—Saturday, 29th June, 1929. Conductor—H. C. Lawlor.
Number present, 74.

Glorious weather favoured the fifth seasonal excursion, when seventy-four members and friends, seven of whom hailed from New Zealand, visited the site of the old Celtic Monastery on Ram's Island, Lough Neagh. The pier at Langford Lodge had been placed at the disposal of the Club by Colonel Pakenham. The Antrim Motor Boat Company's launch conveyed the party in two relays to the island. The conductor, Mr. H. C. Lawlor, M.A., explained what was known of the history of the Monastery and the architectural features of the Round Tower. He tentatively

identified Ram's Island with "Inis Darcarerenn of Loch Echarch," which finds mention several times in the Annals. The present condition of the tower is very bad, and unless skilfully repaired much of the western side may at any time collapse.

The botanically and conchologically interested members of the party found much to engage their attention, especially on the long, narrow, low-lying northern end of the island. Here the yellow iris was found in profusion, growing to a height of 6 ft. 6 in., with meadow sweet almost as high. The geologists had much to interest them in the old beach which surrounds the island some ten feet above the present water level. Here were to be found glacial erratics from places far distant, the original locality of which was explained by Mr. Welch. He also exhibited examples of the somewhat rare land shells which he had found here, such as *Zonitoides nitidus*, *Vertigo antivertigo*, and the curious Lough Neagh form of *Limnæa stagnalis*, *palustris* and *pereger*.

A delightful *al fresco* tea was provided at the cottage by Mrs. Lawlor and Miss Heron, after which an informal meeting of the Club was called by the President, Miss W. J. Sayers, B.A., when hearty votes of thanks were passed to Colonel Pakenham for placing his boat quay at the disposal of the Club and allowing the members the enjoyment of wandering round his beautiful demesne, and to Lord O'Neill for allowing the excursion to inspect Ram's Island.

Belfast was reached at 9.15 p.m.

BUNDORAN AND DISTRICT.

Date—11th-15th July, 1929. Conductors—R. J. Welch, M.Sc., M.R.I.A., and Alex. H. Davison. Number present, 45.

The party left the G.N.R. terminus, Belfast, at 4.15 p.m. on Thursday, 11th July, and took up headquarters at Hamilton's Hotel, Bundoran. Friday morning was spent among the rock pools at the West End where Mr. R. J. Welch, M.Sc., M.R.I.A., pointed out and described the rich fauna and flora of these famous pools. After lunch the party proceeded to Roughie Rocks and Aughrus Head where the geologists obtained many fossils from the Carboniferous rocks.

The walk was continued by the Fairy Bridges—interesting examples of coast erosion—to the Finner Strand, where

the dunes were explored for flint implements. After dinner Mr. R. J. Welch gave an interesting talk on the marine specimens collected during the day.

On Saturday morning the party motored to the Falls and Abbey of Assaroe. After examining these and the monk's cave close by a start was made for Brown Hall, Ballintra, where the interesting underground river—The Pullins—was explored. Lunch was partaken of in the woods, after which the botanists and zoologists commenced an enjoyable search for specimens.

At Brown Hall the party were received by Captain and Mrs. Hamilton and daughters who exhibited many antiques and works of art, including a three-fingered Celtic bronze bell found in a bog near Ballintra.

The return journey was made *via* Rossnowlagh, where some time was spent on the Strand. A number of the party proceeded to Kilbarron Castle, the ruined Castle of the O'Cleerys, authors of "The Annals of the Four Masters." After dinner the President, Miss W. J. Sayers, B.A., described the botanical finds of the day.

On Sunday the party divided into sections; some remained at Bundoran while others motored to various places of interest in the district, including Drumcliff Round Tower and Cross, Glencar, Sligo Abbey and Ben Bulbin, and Rosses Point.

On Monday morning after breakfast a business meeting was held at which votes of thanks were passed to Captain and Mrs. Hamilton, the G.N.Rly. traffic department and the proprietor and staff of the hotel. It was also made the occasion of an interesting presentation of a memento of the excursion to Mr. R. J. Welch, one of the conductors. The party returned to Belfast by train leaving at 11.20.

STRANGFORD LOUGH (WEST SIDE).

Date—20th July, 1929. Conductors—D. E. Lowry and J. Skillen.
Number present, 50.

This excursion had principally in view places of archæological and historical interest along the west coast of Strangford Lough from Comber to Ringhaddy. The members proceeded to Comber by motor bus and were met by some coming in private cars at the Gillespie's Monument in Comber Square. The first point of call was the Ballygraffan dolmen, and here a short description was given of dolmens as sepulchral monuments,

Castlespie Standing Stone was then visited, the probable site of Bishop Innoc's Church founded by St. Patrick, and the name (Castle Easpuic), the Castle of the Bishop, preserves the tradition. Next, the route lay past Tullynakill old church to see a "squatted" house, the site of an old cockpit. Then, coasting by Ballydorn and Sketrick Castle, the party came to Whiterock Hill, the top of which gave them extensive views over the Lough and neighbourhood. Coming down from the hill, a visit to the old church and Elizabethan Castle at Ringhaddy brought the excursion to an end, save for the meeting for tea at Newtownards.

GALGORM DEMESNE AND PORTGLENONE.

Date—3rd August, 1929. Conductor—J. Skillen.

Number present, 50.

On arriving at Galgorm Castle, permission to visit having been kindly granted by the Right Hon. W. R. Young, the party was met by a local member of the Club, Dr. D'Evelyn, J.P., and Mr. A. Raphael. Mrs. W. R. Young, J.P., extended a warm welcome and entertained the party to tea. Before leaving Mr. R. S. Lepper expressed the gratitude of the Club for Mr. and Mrs. Young's kindness. The old chapel was afterwards visited, as well as the Rath and Colville's Pool in the River Maine. On the way to Portglenone a stop was made at Tullyhill to view the magnificent scenery of the Bann Valley, and here Dr. Stewart, of Portglenone, and Mr. D. G. Montgomery, of Lisrodden, met the excursion to act as guides to the shores of the Bann. At Portglenone Dr. Stewart's magnificent collection of bronze weapons, flint implements, coins, &c., were on view and examined with great interest. Before starting to walk to the Rough Islands on the County Derry side of the river Mrs. Stewart and her family entertained the excursionists to an *al fresco* lunch in their beautiful garden and in perfect weather. The walk along the river bank to the Rough Islands was an enjoyable one, and Dr. Stewart gave a talk on the history and lore of the district. At New Ferry, where there is an antiquated horse ferry worked with a windlass and chain, the party crossed to visit the site where flint artifacts were found under the diatomaceous clay. The clay here is five feet deep, and under it were found fire hearths and manufactured flints.

While at this place Mr. Gracey, of Kilrea, actually found a wrought flint in situ. Tea was taken at Mr. Grant's hotel in Toome, and afterwards a meeting was held, the President (Miss W. J. Sayers, B.A.) in the chair, when a vote of condolence was passed to the relatives of the late Dr. S. W. Hill, J.P., of Larne—all the members standing—and an announcement made that out of respect to his memory the excursion to Glenarm arranged for 31st August would be abandoned. The President also conveyed the warm thanks of the Club to Dr. Stewart, his wife and family, and to Mr. D. G. Montgomery for helping to make what was a red-letter day in the excursions of the Club.

DERRYADD AND LOUGH NEAGH SHORE.

Date—31st August, 1929. Conductor—R. J. Welch.

Number present, 55.

This was a half-day excursion, the members leaving the Old Museum at 2 p.m. by motor bus. Old Shankill graveyard, a pre-Reformation burying place, was visited on the way. On arrival at the mouth of the Upper Bann, where it flows into Lough Neagh at Charlestown, the party scattered, some looking for plants. The best finds of these botanists included the Frogbit (*Hydrocharis morsus-ranæ*), the Marsh Veronica (*Veronica scutellata*), the Nodding Bur Marigold (*Bidens cernua*), and also fine masses of that typical wet bog plant, the Sundew (*Drosera rotundifolia*). Meanwhile others of the party searched the shore for shells, but the water of both river and lough was too high for this, though some small pebbles of jasper were found in the gravel. On the return journey, a halt was made in Lurgan for tea, after which a short business meeting, presided over by the President (Miss W. J. Sayers), was held, and a new Junior Section member elected. Belfast was finally reached about 8.45 p.m.

RAMBLE AROUND OLD BELFAST.

Date—Saturday, 7th September, 1929. Conductor—Joseph Skillen.

Number present, 80.

Members and friends met at the Municipal Museum, a visit being made to the Belfast Room to examine the Magowan collection of paintings and engravings, chiefly views of the city as it was in the latter half of the 19th century.

Way was then made to the Charitable Institution, where the first organised attempt was made in Belfast to deal with poverty, a society that in earlier days issued licences to beggars to pursue their avocations.

Clifton Street Old Graveyard was next visited, where many old Belfast worthies are buried. The party passed through Carrick Hill, formerly the old coach road, Carrickfergus—Belfast—Dublin, proceeding *via* Millfield, so called from the Manor mill that formerly stood there, and then passing the site of the ancient Pound, and continuing by Durham Street and College Square North, the site of the old House of Correction was reached, now replaced by the Presbyterian War Memorial Hostel. Arriving at Donegall Square South the conductor pointed out some remaining examples of late Georgian or early Victorian domestic architecture, the finest existing example being visited—the town house of Earl Cairn's father. Going by May Street and Joy Street, names commemorating old Belfast families, High Street was reached and a pause made at St. George's Church to admire the portico in front of the building. This portico was originally intended for the Earl of Bristol and Bishop of Derry's new palace at Ballyscullion, Co. Derry, a palace that was never completed owing to the death of the bishop. Here are buried many whose names are associated with the rise of Belfast, also the unfortunate Henry Joy M'Cracken, executed at the old Market House for participation in the '98 rebellion. After passing through Sugarhouse Entry, where the Society of United Irishmen first met, the ramble terminated at the new Cathedral of St. Anne's, a fine example of Celtic-Romanesque Architecture.

The weather was fine during this prolonged walk and the conductor gave informal talks at the various places of interest.

RED HALL, BALLYCARRY.

Date—5th October, 1929. Conductors—E. N. Carrothers and A. E. Muskett. Number present, 50.

This excursion—the fungus foray for 1929—was conducted to Red Hall, Ballycarry, where, through the kindness of Mrs. R. M'Clintock, the beautiful grounds were opened to the Club. The party journeyed to Ballycarry by train and then walked to the demesne, where an active search was made for fungi of all kinds. A most enjoyable afternoon was spent, although the number of species collected

was small owing to the spell of dry weather which had preceded the excursion. Apart from this, however, some useful finds were recorded, and the Ulster list of fungi was again added to. A goodly number of junior members were present and took an active interest in the work, some of the best finds being due to their vigilance. Towards the close of the afternoon rain fell heavily and the party left the demesne to catch the 6.18 p.m. train to Belfast, but not before a hearty vote of thanks had been passed to Mrs. M'Clintock for her kindness in allowing the Club to visit Red Hall.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session opened with a Conversazione held in the Assembly Hall, Fisherwick Place, on Tuesday, 29th October, 1929, at which there was a very large attendance of members and friends. Tea was served from 7 to 8 p.m.

The Exhibits included:—

BOTANY.—The President, dried Ferns; Captain Chase, some Belfast Aliens; Miss M. W. Rea, Marine Algæ; Rev. W. R. Megaw, some illustrated books on Mosses; Shaftesbury House School, a collection of Fruits; E. N. Carrothers, *Lolium Remotum* from Co. Derry.

GEOLOGY.—A. M'I. Cleland, Fossils from Coralline Rocks, Oxford, Flints from other rocks, Magheramorne Quarry; Alex. H. Davison, Fossils illustrating the Zonal Fauna, Upper Cretaceous; Robert Bell, Upper Cretaceous Cephalopoda; Belfast Municipal Museum, varieties of Quartz; W. A. Green, Native Amber, N.Z., specimen of Pink Terrace, Wakawerawera, N.Z.

ZOOLOGY.—W. M. Crawford, American Butterflies, Leaf Butterflies; J. A. S. Stendall, circulation of blood in foot of common Frog; James Orr, live Reptiles and Batrachians; Josias Cunningham, local Birds; R. J. Welch, land and fresh water Shells.

ARCHÆOLOGY.—A. M'I. Cleland, Potsherds, Dundrum Sandhills, Co. Down; Joseph Skillen and J. A. S. Stendall,

Flint and Stone Artifacts found under deposit of Diatomaceous (Bann) Clay five feet thick, diagram of section and photographs.

ETHNOGRAPHY.—David E. Lowry, Knives and rare Weapons.

MISCELLANEOUS.—C. R. Nodder, Vortex Rings, Polarising Microscopes, Microscopic Exhibits; A. M'I. Cleland, Demonstration with Bunsen Burner; Miss Maudsley, Maundy Money; Miss Sayers, old Coins and Tokens; R. A. Black, Photographs; C. R. Nodder, set of Stereoscopes with photographs of Natural History interest; R. J. Welch, photographs; W. A. Green, Pictures of Donegal and Connemara.

JUNIOR SECTION.—The exhibits staged by the Junior members included fossils, flint arrowheads, pressed flowers, a freak plant (Dame's violet), snake skins, shells and a Nature diary, these being shown by the Misses Jean Cole, Agnes Howatt, Lois M'Keown, Elizabeth Megaw and Beatrice Searle and Masters Martyn Cleland, Vivien Green, Ranald Macdonald and Ernest Langton May.

Other exhibits were (1) labelled tree twigs, shown by the winner of the President's prize, (2) slime fungi collected on the occasion of the Fungus Foray excursion and (3) lists of flora and fauna of Colin Mountain, with some specimens collected and named by certain Junior Members.

At 9.10 the Business Meeting took place, when the President, Miss W. J. Sayers, B.A., welcomed Dr. M'Loughlin, the President of the Derry Naturalists' Field Club, and expressed the Belfast Club's satisfaction that there were now three affiliated societies in Northern Ireland, in Route, Linavady, and Derry. She congratulated the exhibitors on the wonderful variety they had achieved and, referring particularly to the Junior section, expressed the Club's thanks to Mrs. Nodder for the success which had attended her efforts in that direction.

She drew attention to the £10 prize offered by the Club for a piece of original written work on any matter in natural science or local antiquities, and said that the Committee would appreciate it if any member would send in a monograph which would be worthy to form an appendix to the Proceedings of the Society.

A lantern display followed, showing views taken at summer field meetings, including some 70 slides by amateurs, and views of the pearl mussel beds at Marino.

A number of new members were elected.

PRIZE-WINNERS.

The prizes awarded in connection with the summer programme were distributed as follow:—Best collection of natural history specimens for a prize presented by Mr. W. M. Crawford—E. Langton May. Second prize, presented by Mr. S. Freeland—Martyn Cleeland. Prize presented by Mr. A. M'I. Cleeland for best collection of fossils, Elizabeth Cleeland. Prize presented by Mr. R. S. Lepper for best collection of antiquarian photographs—R. Noel Gregg. Prize presented by the Vice-President, Captain Chase, for the best collection of pressed flowers—Beatrice Searle. Two second prizes presented by Mr. R. V. Cleeland and Mr. J. A. Stendall were won by Vivien Green and Jean Cole. The President's prize for identifying twigs was awarded to Ethne Glendinning. The conversazione prizes offered to Junior members were won by A. E. Connelly for the best living exhibit of zoological interest; Marjorie Cleeland for the best living exhibit of botanical interest; and Murphy Nodder for the best surprise natural history exhibit.

FIELD WORK AS A HANDMAID TO HISTORY.

The first ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 19th November, 1929, at 8 p.m., when the presidential address was delivered to a large audience by Miss W. J. Sayers, B.A.

The address, illustrated by lantern slides, dealt with the growing importance of archaeology. In contrast to history, it might be looked on by some as an uncharted and unchartable sea, and yet as a result of excavation much history had had to be re-written. International sharing of national discoveries helped to further some of the aims of the League of Nations, but there was also the other side of the picture, our work here being somewhat unintelligible until compared with results all over the world. Miss Sayers quoted the description of Ireland as the "great prehistoric Museum of Northern Europe," and urged her audience to make the fullest use of their national heritage, which was a particularly fertile field for the study of neolithic culture.

The construction of the Dolmen, of which there are 800 in Ireland and over 200 in Ulster, was lucidly described, as well as stone circles, standing stones, cists, raths, crannoges and sweat-houses.

An interesting discussion followed in which R. J. Welch, C. E. Kerr, H. C. Lawlor, A. M'I. Cleland and D. E. Lowry took part.

SIGURD THE CRUSADER.

The second ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 17th December, 1929, at 8 p.m., the President (Miss W. J. Sayers) in the chair, when a lecture under the above title was delivered by Mr. D. E. Lowry, J.P.

Sigurd, said Mr. Lowry, was the son of Magnus Barfod, a celebrated King of Norway, who, according to tradition, was killed in battle near Downpatrick. After his father's death Sigurd left Norway with his brother Eystein and 6,000 men, sailed through the North Sea and down the English Channel to England, where he was the guest of Henry I. After that Sigurd sailed round France and Spain and into the Mediterranean to join in the first Crusade.

Mr. Lowry retold in a most interesting manner Sigurd's fight with the Moors, his encounters with pirates, his adventures in the Balearic Islands, and his arrival at Sicily, from which the family of the D'Hautevilles had driven the Saracens.

The lecturer dealt with the story of the Crusades, and said that though religious at first in their inception they were later marked by deeds of cruelty and greed. What might have been a revival of Christendom eventually became a filibustering expedition, with the leaders striving for the mastery of a kingdom or a city, or seeking for plunder.

Sigurd returned to his native land, rich and celebrated after an absence of six years.

Miss W. J. Sayers and Messrs. R. S. Lepper, Jas. Loughridge and Col. R. G. Berry spoke to the lecture or asked questions, and Mr. Lowry's reply brought an enjoyable evening to its termination.

THE A.B.C. OF BIRDS.

The third ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 7th January, 1930, at 8 p.m., the President (Miss W. J. Sayers) in the chair. In the unavoidable absence through ill-health of Mr. James J. Phillips, F.R.S.A.I., who was to have given a lecture entitled "Memories of Notable

Personalities, Saints and Scholars," J. A. S. Stendall kindly filled the gap at short notice and gave an interesting lecture on the "A.B.C. of Birds."

The lecturer dealt with his subject in a simple manner, treating in the first instance of bird structure, both external and internal. He gave a lucid account of feather formation and followed with short accounts of migratory and resident birds, their eggs and nesting habits. Protective colouration received attention, as did the behaviour of old birds in the nesting season and of their young. Continuing, the lecturer showed a large series of lantern slides depicting birds in their haunts in various parts of Northern Ireland, and gave interesting accounts of observations he had made in the course of his many minor expeditions to secure bird photographs.

At the conclusion several members voiced their appreciation and asked questions, which the lecturer fully answered.

SPORT WITH A CAMERA IN NATURELAND.

The fourth ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 21st January, 1930, at 8 p.m. The President (Miss W. J. Sayers, B.A.) occupied the chair and the lecturer was Mr. J. A. Benington, B.Sc. The lecture was illustrated by beautiful slides shown by Mr. A. R. Hogg from photographs taken by Mr. Benington.

The story of how these photographs were obtained—though Mr. Benington was very modest about the part he himself played—was fascinating. Sometimes a whole day was spent in trying to get a photograph of a single nest, for Mr. Benington's study is that of bird life, and preferably bird life which shuns the haunts of man. Birds unaccustomed to human society were extremely wary, and camouflage played a large part in Mr. Benington's equipment. He slips about Strangford Lough or Lough Neagh in a little canoe, round which he arranges reeds in such a way that the canoe is screened from observation, but more frequently the canoe is stationary for hours and the watcher from behind his screen keeps an eye on a duck's nest. Even then results, except from a more intimate knowledge of bird life and nature, may be nil, for the warning cry of a heron, from which all birds take their cue, is sufficient to scatter the bird life in a few minutes.

Mr. Benington mentioned that grebes, herons and other birds, almost extinct a few years ago in Ulster waters, are on the increase, and claimed that this was partly due to the employment of watchers who prevent boys from collecting eggs along the shore and wilfully destroying them. A beautiful record of a blackbird's song brought the lecture to a close.

A vote of thanks to the lecturer was unanimously passed on the motion of J. A. S. Stendall, seconded by D. J. Carpenter.

THE FEBRUARY SKIES.

The fifth ordinary meeting of the Winter Session was held in the Museum, College Square North, on Thursday, 6th February, 1930, at 8 p.m., the President (Miss W. J. Sayers, B.A.) being in the chair. Mr. C. E. Kerr delivered a lecture under the above title. The lecture comprised a description of, and commentary on, the constellations, stars, planets, nebulae, meteoric radiants, etc., which are visible in a clear sky in these latitudes at this time of the year. The lecture was illustrated with lantern slides.

NATURALISM IN ROMAN ART.

The sixth ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 18th February, 1930, at 8 p.m., the President (Miss W. J. Sayers, B.A.) taking the chair. The lecturer was Mr. Ian A. Richmond, M.A., of Queen's University.

The lecturer drew attention to the close connexion between the agricultural basis of Roman Society, the policy of the Imperial Government and the artistic taste of the first century A.D. He also discussed the significance of the distribution of this type of Art, the reasons of its failure to take root everywhere in the Roman World and the causes of its ultimate decline.

Messrs. R. S. Lepper and A. M'L. Cleland voiced the appreciation of the audience.

GRASSES.

The seventh ordinary meeting of the Winter Session was held in the Museum, College Square North, on Thursday, 6th March, 1930, at 8 p.m., when Captain C. D. Chase, M.C., M.A., spoke on the above subject. The chair was taken by the President (Miss W. J. Sayers, B.A.).

The lecturer first referred to the number and uses of grasses, pointing out that man is very dependent upon the various species for his sustenance. The parts of a grass were then explained and illustrated by slides, which included a number of our common grasses and a few aliens which had been gathered in the neighbourhood of Belfast. Amongst these was *Bromus britannicus*, the grass recently described as new to science by I. A. Williams, from Sydenham, Co. Down.

Miss Sayers, J. A. S. Stendall, A. H. Davison, D. J. Carpenter, C. R. Nodder and Joseph Skillen took part in the discussion which followed.

THE CELTIC GODS.

The eighth ordinary meeting of the Winter Session was held in the Museum, College Square North, on Tuesday, 18th March, 1930, at 8 p.m. Col. R. G. Berry, M.R.I.A., was the lecturer and the President (Miss W. J. Sayers, B.A.) occupied the chair.

The lecturer remarked that, according to the Celtic belief, the apple was the only food required in the other world.

The apple at one time had a very considerable importance as a sacred fruit. The ideas of the ancient Irish regarding the locality of the other world seemed never to have crystallised definitely. Access was usually heralded by music and the approach of a damsel bearing an apple branch. "It seems that most of the Irishmen never got beyond the land of women, where they were content to remain."

The lecturer referred to discoveries of ancient carvings and figures at Lydney Park, Gloucestershire, and described the druids' altar. In pagan Ireland there was the worship of kings, heroes, and river gods. Pagan burying-grounds had names representing gardens, orchards, &c.

The lecture was illustrated with lantern slides.

CAVE RESEARCHES IN ENGLAND.

The ninth ordinary meeting of the Winter Session took place in the Old Museum on Tuesday, 1st April, 1930, at 8 p.m., the chair being taken by the President (Miss W. J. Sayers, B.A.). The lecturer, Dr. J. W. Jackson, F.G.S., of Manchester Museum, said:—

During recent years there has been great activity in the scientific exploration of the limestone caverns of Derbyshire, North Staffordshire, Yorkshire, North Wales, and other places, the outcome of which has been a great increase in our knowledge of early man. Valuable information has also been obtained relating to the animal and bird life in the British Isles at a period long before there were any domestic animals and at a time when very different climatic and geographical conditions prevailed.

The chief Derbyshire caves which have received attention are those at Creswell, on the borders of Derbyshire and Nottinghamshire; Harborough Rocks, near Brassington; Cressbrook and Lathkill Dales; Castleton; and in the valleys of the Dove and the Manifold.

The Creswell caves have been famous since the seventies, when evidence was obtained that they had been used as habitations by early man and at times as dens of wild beasts. Further extensive diggings have been carried out there by Mr. A. Leslie Armstrong, of Sheffield, and much important information has been obtained concerning the Pleistocene fauna of the district and the conditions under which Palaeolithic man lived. The caves known as Mother Grundy's Parlour and the Pin Hole have been the scene of the recent activities.

The animals revealed by the past and present excavations at Creswell form a most remarkable and interesting group. They consist of several extinct species, including the hairy mammoth, the woolly rhinoceros, the giant Irish deer, and the great cave bear, and of others which have retired to far-away regions, as the reindeer, Arctic fox, glutton or wolverine, lemmings, lion, spotted hyæna, brown bear, etc. Many bird remains have also been found and these include bones and skulls of species no longer living in the neighbourhood. Among others the ptarmigan is conspicuous.

Many implements fashioned by man have been found in the caves. Like the animal remains, these occurred at various levels and belong to different stages of culture and different periods of occupation. Those obtained from the deeper layers are of a rough and primitive type made from local pebbles of hard quartzite or ironstone. They belong in the main to a stage of Palaeolithic culture known as the Mousterian, when the heavy-browed Neanderthal man inhabited much of Western Europe. The implements

obtained from the higher levels are of flint, which must have been brought some distance by the cave dwellers. This flint industry includes many types which are characteristic of the Upper Palæolithic in France and elsewhere. The implements comprise knife-like blades and points, scrapers, and gravers of various forms, such as have been found in Aurignacian and later deposits in British and continental caves. They belong to a time when men more akin to our own species were using the caves.

Among the many objects found by Mr. Armstrong in recent years are two of surpassing interest and importance from the upper cave-earth at the Pin Hole cave. One of the objects is an engraved bevel lance-point made of mammoth ivory, very similar in character to a point from the cave of La Madeleine in France. The other is the rib of a reindeer carved with the figure of a man who appears to be wearing the head of some animal. It is thought to represent a magician or "witch-doctor" of the Stone Age. In general technique and character the figure resembles those found in the caves of Hornos and Altamira on the continent, which are Aurignacian in date. It is interesting to recall that the first engraved bone to be met with in Britain was found in one of the Creswell caves in the 'seventies. This consists of a fragment of a rib upon which is engraved the head and neck of a horse. Objects such as those described above serve to link very closely the flint users of the Creswell caves with the Upper Palæolithic inhabitants of the caves of France and elsewhere where engravings and carvings have been found in some numbers.

In excavations made in front of Mother Grundy's Parlour, Creswell, a few years ago, Mr. Armstrong found pygmy flint gravers and objects of geometrical forms belonging to the Azilio—Tardenoisian period (or Early Transition from Palæolithic to Neolithic). These provide a possible link between the cave cultures and the microlithic industries on open-air sites on the Pennines and elsewhere. There seems to be a suggestion here that the later Creswell cave-dwellers migrated to the Pennine moorland sites long before the peat-period.

Several other caves in Derbyshire, especially at Langwith, Lathkill Dale, Cressbrook Dale, and near Brassington, have provided evidence of temporary occupation by Palæolithic man.

Under the direction of the lecturer, the Yorkshire caves, especially those in the neighbourhood of the famous Victoria

Cave, are now being explored in the hope of finding indications of occupation by early man. Many important remains of extinct animals have been found, but no implements of Palæolithic type have been met with so far.

Regarding North Wales, investigations by the lecturer were proceeding in a cave at Gwaenyssgor, near Prestatyn, and the remains of reindeer, bison, woolly rhinoceros, and hyæna, have already been found. Their association with glacial material seems to suggest that the cave was a hyæna-den at some time before the last of the great ice-sheets swept over the area.

Many valuable and important finds have been made by the Bristol University group of workers in the caves of Burrington Coombe and the Wye Valley. A most interesting example of a barbed harpoon of staghorn was discovered in Aveline's Hole, Burrington. Several discoveries have been made in that famous showplace, Gough's Cavern, in Cheddar Gorge, Somersetshire, the most interesting being two objects known on the Continent as "*batons-de-commandement*," a class of implement supposed to have been used as ceremonial wands of authority, sceptres, or as arrow-shaft straighteners. One of these is of reindeer antler bearing incised grooves and perforated at one end; the other is somewhat similar but is of bone. These are the only two of their kind found in Britain, but many are known from the French caves of Upper Palæolithic date.

Renewed examination of the Irish caves was now being carried out and several important finds which have a bearing upon the antiquity of man in Ireland have been made in that at Kilgreany, Co. Waterford.* A human skull of presumed Late Palæolithic date was found in the latter cave associated with extinct animal remains including reindeer, giant Irish deer, and Arctic lemming. There was also the skull of the Continental field vole—the first vole to be recorded for Ireland.

A vote of thanks to the lecturer was moved by D. J. Carpenter, seconded by A. H. Davison, and, supported by A. M. I. Cleland, was passed by acclamation.

R. J. Welch and J. A. S. Stendall also spoke.

The lecture was illustrated with lantern slides.

**Vide Irish Naturalists' Journal*, Vol. III, p. 118.

ANNUAL MEETING.

The Annual General Meeting was held in the Museum, College Square North, on Tuesday, 15th April, at 8 p.m., the President (Miss W. J. Sayers) in the chair.

The following Reports were presented:—

COMMITTEE'S REPORT FOR SESSION.

SIXTY-SEVENTH YEAR, 1929-30.

The following report is presented by the Committee for your approval. We record with pleasure that for the first time in the history of the Club a lady president guided its activities.

During the year 48 Ordinary and 43 Junior Members were elected and the Membership stands as follows:—7 Honorary, 4 Corresponding, 2 Life, 507 Ordinary and 109 Juniors, making a total of 629.

There are now three Field Clubs affiliated with us, namely, the Route, the Limavady and the Londonderry Naturalists' Field Clubs.

In accordance with Rule III some names were struck off the roll for non-payment of subscriptions.

It is with deep regret that we have to record the death of several of our Members—whose names are appended—and particularly that of R. V. Cleeland, who was at the time of his death a Member of Committee. He took a great interest in the Juniors, and extended hospitality to this section on several occasions.

During the year 12 meetings of Committee were held, and the following were the attendances:—

Miss W. J. Sayers	... 12	R. S. Lepper	... 9
Joseph Skillen	... 12	James Orr	... 9
Robert Bell	... 11	Miss Rea	... 9
A. M'I. Cleland	... 11	R. J. Welch	... 9
W. M. Crawford	... 11	D. J. Carpenter	... 7
A. H. Davison	... 11	S. Freeland	... 7
Mrs. Nodder	... 11	Chas. E. Kerr	... 7
C. R. Nodder	... 11	R. V. Cleeland	... 6
T. A. S. Stendall	... 11	Rev. W. R. Megaw	... 6
A. A. Campbell	... 10	E. N. Carrothers	... 5
Capt. Chase	... 9		

There were eleven Field Excursions arranged for the summer and all were held save one, that to Glenarm Glen, *via* Cairncastle and the Headless Cross, on 31st August, which was abandoned owing to the lamented death of Dr. Saml. Hill, J.P., who was to have acted as local conductor. The excursion to Derryadd and the Lough Shore was changed to this date, as the date originally fixed was unsuitable, the Tourist Trophy Race being on 17th August.

The Fungus Foray which was arranged for 28th September to Shane's Castle was held at Redhall, Ballycarry, as the date was unsuitable for admission to Shane's Castle.

It is worthy to record that on the occasion of the Portglenone excursion the party visited some primitive hearths of the Neolithic period at the New Ferry, found under five feet of diatomaceous clay where some artifacts were collected *in situ*. It is hoped that in the future further investigations by the Club will be made on this interesting site

The excursions were as follows:—

	Conducted by
28th May, 1929 (evening), Purdysburn Glen and Mealough	J. A. S. Stendall.
8th June (whole day), Ballintoy	R. J. Welch.
15th June (whole day), Maghera, Co. Derry	Rev. Dr. Marshall and A. A. Campbell.
22th June (evening), Belvoir Park	J. A. S. Stendall and Rev. W. R. Megaw.
27th June (half day), Glenavy and Ram's Island	H. G. Lawlor.
11th to 13th July, Bundoran and District	A. H. Davison and R. J. Welch.
20th July (half day), Strangford Lough (West Side)	D. E. Lowry and Joseph Skillen.
3rd August (whole day), Portglenone, via Galgorm Demesne	Joseph Skillen.
31st August (half day), Derryadd and Lough Shore	R. J. Welch.
7th September (half day), Old Belfast	Joseph Skillen.
28th September (half day), Red Hall, Ballycarry (Fungus Foray)	A. E. Muskett and E. N. Carrothers.

Reports from the sections will be submitted, showing what excursions they held.

The Annual Conversazione took place in the Assembly Buildings on 29th October, and was well attended by Members and the general public.

The President addressed the meeting and gave an interesting account of the activities of the Club, and slides were shown illustrating the summer excursions. The prizes won by the Juniors at the *Conversazione* were presented by the President.

The Committee desire to return their best thanks to the donors of the prizes, who were as follows:—

The President (Miss W. J. Sayers), two prizes, the Vice-President (Capt. C. D. Chase), Miss Rea, and Messrs. S. Freeland, the late R. V. Cleeland, A. M'T. Cleeland, W. M. Crawford, R. S. Lepper, J. A. S. Stendall, R. J. Welch and *The Irish Naturalists' Journal*.

Nine lectures were given during the winter, all being illustrated with lantern slides, and the Committee are pleased to report that in every case there were large and interested audiences. All the lectures were followed by an interesting discussion.

Mr. Jas. J. Phillips, F.R.S.A.I., was to have given a lecture on Jan. 7th entitled "Saints and Scholars," but illness prevented him fulfilling this engagement, so Mr. J. A. S. Stendall kindly agreed to substitute a lecture on "Birds" instead.

We are indebted to the undernoted for their kindness to us during the summer excursions, and we offer them our grateful thanks.

Right Hon. W. R. Young and Mrs. Young, J.P.,
Galgorm Castle.

Dr. J. B. Stewart and Mrs. Stewart, Portglenone.

David G. Montgomery, Lisrodden, Portglenone.

Rev. Dr. Marshall and Mrs. Marshall, Maghera.

James Harpur, Purdysburn.

J. H. Burke Murphy, Purdysburn.

Colonel Pakenham, Langford Lodge.

Mrs. M'Clintock, Redhall, Ballycarry.

To the Press also we return our best thanks for reporting our meetings.

W. J. SAYERS, *President*

JOSEPH SKILLEN, *Hon. Secretary.*

OBITUARY.

Miss E. Andrews.
Mrs. Elizabeth Blair.
J. C. Carson.
R. V. Cleeland.
Miss Mary Duff.
Mrs. F. A. Heron.
Dr. S. W. Hill, J.P.
James Maxton.
A. W. Metcalfe.
J. H. Vincent.

HON. LIBRARIAN'S REPORT.

The work is still mostly limited to the receipt and registration of *Proceedings* received from Exchanging Societies, and, during the year, parts 8—10 of Vol. VIII of our own *Proceedings* were sent out in return.

The books are now arranged in the Municipal Museum Library, where they will be more accessible to the members of the Field Club, and as I am now Honorary Librarian there, I can still take a practical interest in what was formerly the Field Club Library. Steps were taken, in a number of cases, to get gaps filled up in our sets of the *Proceedings* received from other Societies.

The usual list of Exchanges will be found at page 77.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF HON. RECORDING SECRETARY.

One can but agree with the admirable weather report for 1929 compiled by Rev. W. F. A. Ellison of Armagh Observatory, and published in *The Irish Naturalists' Journal*, Vol. III, page 15, that the past year was one of extraordinary contrasts. The rainfall for the first seven months was 7 inches short of normal, yet by 31st December a total fall of 33.90 inches had been recorded; just one inch above the average.

The temperature in the early part of the year was lower than usual, but, strange to say, Mr. Ellison recorded 60° in March on eight occasions, and 67° on the 30th of the month.

April opened with cold winds, yet the bird migrants arrived well up to time, full details of which, as well as other phenological data, will be found in *I.N.J.*, Vol. III, Nos. 1 and 2.

Noteworthy bird records for the year include the nesting of the Fulmar Petrel, *Fulmarus g. glacialis* (L.) on the cliffs of the County Antrim mainland, near Ballycastle. Mr. J. A. Benington observed a nesting colony there in July. Ever since the Fulmar selected Rathlin Island as a breeding station in 1922 a watch has been kept for the species to occupy mainland cliff sites, and now that it has done so it is only reasonable to anticipate an extension of its breeding range in suitable places all along the Antrim coast.

Miss Agatha R. Crawford observed a pair of Choughs, *Pyrhocorax pyrrhocorax* (L.) feeding three young, at Fair Head, Co. Antrim, on 29th June, indicating that this species does nest on the mainland.

A female Turtle Dove, *Streptopelia t. turtur* (L.) was picked up dead at Donaghadee on 17th June.

One of the most remarkable observations made during the year was that of Captain the Hon. Charles Mulholland, of Ballywalter Park, who ringed a 3 days' old Corncrake at Downpatrick on 20th July, 1929, which was shot 20 miles N.W. of Tours, France, on 15th September following.

Captain C. D. Chase has recorded a grass new to Ireland, in *Bromus britannicus* Williams, from near Sydenham Railway Station, Co. Down (*I.N.J.*, Vol. III, p. 21).

In the realm of Bryology, Rev. W. R. Megaw records *Grimmia retracta* Stirton, for Co. Fermanagh as being the first Irish record, and also lists ten new vice-County records, full details of which will be found in *I.N.J.*, Vol. II, p. 186).

Now that *The Irish Naturalists' Journal* is available to all members it would be superfluous for me to submit a fuller report of records, but those I have given will serve to recall the activities of our own members who have worked quietly and unostentatiously, as is befitting the true naturalist.

I commend to your notice the publication I have so frequently referred to which is now the official organ to this and other Irish Scientific Societies.

J. A. SIDNEY STENDALL, *Hon. Recording Secretary.*

REPORT OF BOTANICAL SECTION.

Forty-nine members joined the Botanical Section for the season 1929-30. Six excursions were held, the average attendance, including visitors, being sixteen. The following districts were visited:—

Downpatrick, May 25th (half-day).

The Flush, June 4th (Tuesday evening).

Bellevue Rock Gardens, June 11th (Tuesday evening).

Loch Naroon, June 22nd (half-day).

Carn Hill, August 10th (half-day).

Glendarragh, August 24th (half-day).

Among the more interesting plants seen during the year were the following:—

Galium Cruciatum (Rath at Downpatrick), *Erinus alpinus* (Wall of Downpatrick Jail), *Daphne laureola* (Roadside near Inch Abbey—C. D. C.), *Botrychium lunaria* (near Ligoniel), *Pyrola media* and *Taraxacum palustre* (The Flush), *Vaccinium vitis-idaea*, *Rubus saxatilis*, *Habenaria alba*, *Carex limosa*, *Epilobium angustifolium*, *Viburnum opulus*, *Pyrola minor* and *Pinguicula lusitanica* (near Loch Naroon), *Lachnea umbrorum* (fide A. E. Musket, Carn Hill), a rare fungus, and *Carex pendula* (Glendarragh).

At Bellevue Rock Gardens we were fortunate in being conducted by Mr. Graham, who was formerly in charge of these gardens. But for his intimate knowledge of the plants we should have missed many interesting features. Well over a hundred different species were examined, and members were particularly interested in the large blue poppies (*Meconopsis Baileyi*, *M. Wallichii* and *M. Prattii*, and in the rare *Ramondia pyrenaica*, which was in flower. We are glad to have this opportunity of recording our indebtedness to Mr. Aldworth for his hospitality at Glendarragh.

C. R. NODDER, *Hon. Secretary.*

REPORT OF GEOLOGICAL SECTION.

The Section made two excursions during the Session to the following places:—Squire's Hill Quarries, and Cloghfin Port, Islandmagee.

In the Squire's Hill quarries the usual well known features of these quarries were duly noted, but little of fresh interest was observed.

The great attraction of the rocks at Cloghfin Port is the remarkable sequence of rocks to be seen at low water—triassic; rhætic; liassic; greensand; chloritic chalk; chalk; basalt; and boulder drift; all these are well exposed here.

There is also at Cloghfin Port a very interesting exposure of "red chalk," or red marl, with a capping of a stratum of fine grained and shaly sandstone to which a good deal of attention was paid. It is to be seen just above high-water mark.

It occurs in normal chalk, not far removed from the uppermost strata of the chloritic chalk so well developed here, and is capped by a deposit of many additional feet of normal chalk. The exposure is very irregular in outline, does not extend for more than 100 yards, and appears to embrace at least two strata separated by only a few inches one from the other.

The section is very clearly indicated, the marl being seen capped by a stratum of very persistent reddish sandstone, fine grained and very hard. Both marl and sandstone are flaky and can be easily split into sheets.

Marl and sandstone are both calcareous, readily re-acted upon by acid. But a microscopic slice shows that the marl cannot by any means be regarded as a true chalk, as its foraminifera are very sparsely scattered about the mass of the marl, with much foreign matter. In the sandstone it is very difficult to detect any foraminifera at all.

The marl contains flints and lumps of chalk, the edges of the latter being quite sharp and angular. Neither flint nor chalk could be observed in the sandstone.

This deposit was probably formed from deposition from running water in some crevice or crack in the chalk after the latter had been raised above sea level. This seems to be indicated by the presence of the flints and pieces of rough fragmentary chalk.

A. M. I. CLELAND,	} <i>Hon. Secretaries.</i>
R. BELL,	

REPORT OF ZOOLOGICAL SECTION.

Two excursions were held during the Summer Session. The first had as its objective Gun's Island, off Ballyhornan, Co. Down, and was held, in conjunction with the Archæological and Junior Sections, on 25th May. Unfortunately the sea was too rough to permit of crossing to the

island and the party spent the afternoon shore collecting in Ballyhorman and Benderg Bays, the famous Jackdaw galleries in the cliffs of the latter bay being visited.

The second excursion was held on the 22nd June, when a party of 26 proceeded by bus to White Rocks, Killinchy, where they embarked in a motor boat for a cruise on Strangford Lough. A visit was paid to one of the many islands, the breeding place of great numbers of Terns, Ringed Plovers, Red-breasted Mergansers, and other species of birds, whose eggs and nesting habits were observed with interest, especially by a number of Juniors who accompanied the party.

Re-embarking, a course was steered through the whirlpools and boiling eddies of the Narrows to Rock Angus, but here the fates were unpropitious and it was found impossible to land. Some dredging was done during the return journey to Killinchy. Thanks are due to Messrs. McMinn Brothers, Ballygowan, for their kindness in providing the motor boat for the afternoon.

JAMES ORR, *Hon. Secretary.*

REPORT OF ARCHÆOLOGICAL SECTION.

This Section had one excursion during the past summer. This was to Ardglass, by train. On arrival there, the old church at Ardtole was visited, and one of the joint secretaries (Jos. Skillen) related what was known of its history and traditions. After a pleasant walk around the bay Jordan's Castle was next visited and it was interesting to note that since it was taken over as an ancient monument all the contents—consisting of a valuable selection of antiquities—have been catalogued.

JOSEPH SKILLEN, *Hon. Secretary.*

REPORT OF JUNIOR SECTION.

The number of junior members on the list in April, 1929, was 95. During the year five members have resigned, four have been transferred to Senior membership, and 43 new ones have been elected. Thirty-three names have been removed from the list owing to two years' non-appearance at excursions and non-payment of subscriptions. There are now 109 on the list.

The average attendance at summer excursions was about twenty.

At the two evening lectures, intended primarily for junior members, and the one "talk" the attendance was fifteen.

The thanks of the Section are due to the senior members of the Club who acted as conductors to the excursions, and to Mr. Lavery of Coulson's Hand Woven Damask Factory, Messrs. Thomson of Ravarnett Scutch Mills, Mr. Lowson and the Managing Staff of York Street Flax Spinning Company, Canon Taylor and Mr. Joseph Allen of Lisburn for giving unstinted information and access to the places of interest with which they are associated. Also to Messrs. McMinn who took us in their motor launch on Strangford Lough, and to Mr. and Mrs. R. V. Cleeland and Mr. and Mrs. A. H. Davison, Mr. and Mrs. David Hanna and Mr. Swanston for hospitality.

The Section wishes to thank Mr. A. H. Davison who, on April 10, gave a talk on the strata that are to be seen at Cloghfin Port, the whole talk centering round tables laid out with specimens of the finds characteristic of each horizon and illustrated with coloured diagrams.

The following is a list of the excursions and lectures. An unusual and interesting excursion was that arranged for us by the Secretary of the Zoological Section, to an island in Strangford Lough. It had to be limited to twelve juniors.

A number of the excursions, it will be noticed, have been planned to give an insight into the story of linen making—from the retting dams to the finished goods.

Excursions:—Helen's Bay, Colin Mountain (5 times), Ballyhornan Bay, Belvoir Park, Strangford Lough, Cloghfin Port, Portstewart, Old Belfast, Fungus Foray, Ravarnett Scutch Mills, Coulson's Hand Woven Damask Works and York Street Flax Spinning Co.

Lecture on Bird Photography by J. A. Benington.

A small library of natural history reference books has been formed and is in the charge of Ranald Macdonald.

The entries for prizes for the year's work were satisfactorily numerous. They were considered by the judges to be of great merit—particularly Beatrice Searle's collection of seventy wild flowers, all local, collected this year, named and mounted.

Again this year a number of good collections of various kinds were made, but were not submitted for competition.

At the *Conversazione* there was a very satisfactory show of genuine individual work. Two junior members showed valuable finds made during the year—Agatha Crawford had found and bred out two insects, one new to Ireland and the other a variety not previously seen in Ireland. Lois M'Keown showed a very perfect arrowhead she found on Cave Hill.

This year's work on Colin Mountain added a few plants, fungi and mosses to last year's lists. Rev. W. R. Megaw found that one of the mosses sent to him this year was a new one for the County Antrim list.

WINIFRED NODDER, *Hon. Secretary.*

Dr.

Hon. Treasurer's Account for the Year ending 31st March, 1930.

Cr.

Balance from year 1928-29	...	£116	4	10
Subscriptions received, including arrears—	471 at 6/-	141	6	0
	15 at 5/-	3	15	0
Subscriptions paid in advance for year 1930-31—	...			
15 at 6/-	...	4	10	0
41 Entrance Fees at 5/-	...	10	5	0
Balance from Excursions	...	13	5	1
Sale of Proceedings	...	0	10	0
Sale of Florus	...	1	2	6
Interest on Deposit Account	...	3	5	2

Printing and Stationery	...	£47	14	11
Postage	...	40	5	3
Postage of Proceedings	...	7	0	0
Cost of Proceedings	...	100	18	0
Expenses of Conversazione	...	12	14	0
Hire of Museum Rooms	...	21	10	0
Hire of Lantern	...	6	0	0
Subscription to "Sheals Fund"	...	2	2	0
Affiliation Fee "Irish Naturalist Journal"	...	3	0	0
Affiliation Fee "National Trust"	...	1	1	0
Grant towards expenses of Bird Watcher	...	2	0	0
Grant to Junior Section	...	2	2	0
Gratuity	...	0	10	0
Addressing Circulars and clerical assistance	...	18	6	0
Incidental Expenses:—Typing Circulars, Attache Case, Wreath, Foolscap, and Linavady Field Club	...	3	4	6
Balance carried forward to next Account	...	25	14	11

75

In addition to this balance there remains an unexpended sum of £3 14s 3d in hands of Mr. Byrns for postage account.

 £294 3 7

 £294 3 7

Audited and found correct. Balance in hands of Honorary Treasurer—Twenty-five pounds, fourteen shillings, and eleven pence.

9th April, 1930.

A. ALBERT CAMPBELL,
W. M. CRAWFORD.

The following office-bearers were elected for the Session 1930-31:—President, Captain C. D. Chase; Vice-President, C. E. Kerr; Honorary Secretary, J. Skillen; Honorary Treasurer, A. H. Davison; Honorary Librarian, W. M. Crawford; Honorary Recording Secretary, J. A. S. Stendall; Honorary Secretaries—Botanical, C. R. Nodder and Rev. W. R. Megaw; Geological, A. M. I. Cleland and Robert Bell; Zoological, R. J. Welch and Nora Fisher; Archaeological, J. Skillen; Junior Division, Mrs. C. R. Nodder; Ordinary Members of Committee (retire 1931), A. A. Campbell, G. C. Reilly and R. S. Lepper; (retire 1932), D. J. Carpenter, E. N. Carrothers and J. R. H. Greeves; (retire 1933), Miss W. J. Sayers, Professor Charlesworth and James Orr.

Alterations, embodying recommendations made by the Special Committee appointed to consider the future of the Junior Section (now to be called Junior Division), were duly passed and are now incorporated in the rules.

CLUB MEDALISTS.

- 1923. William Swanson, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }

LIST OF EXCHANGING SOCIETIES.

1928-29. 1929-30.

—	—	Belfast—Committee of Public Museum and Art Gallery.
—	—	Committee of Public Libraries:
—	—	Natural History and Philosophical Society.
1	—	Presbyterian Historical Society of Ireland.
—	—	Birmingham—Natural History and Philosophical Society.
1	1	Bournemouth—Natural Science Society.
1	1	Brighton and Hove—Natural History and Philosophical Society.
1	1	Bristol—Naturalists' Society.
1	—	Cardiff—Naturalists' Society.
1	—	Chester—Society of Natural Science, Literature and Art.
1	1	Dublin—Royal Irish Academy.
1	1	Royal Society of Antiquaries, Ireland.
—	—	Royal Zoological Society of Ireland.
—	—	Dumfriesshire and Galloway—Natural History and Antiquarian Society.
—	—	Dundalk—County Louth Archaeological Journal.
—	—	Eastbourne—Natural History, Photographic and Literary Society.
1	—	Edinburgh—Geological Society.
1	1	Essex—Field Club.
1	1	Frankfort—Senckenbergische Bibliothek.
1	1	Glasgow—Royal Philosophical Society.
1	—	Halifax, Nova Scotia—Institute of Science.
—	1	Hertfordshire—Natural History Society and Field Club.
1	1	Isle of Wight—Natural History Society.
1	1	Leeds—Philosophical and Literary Society.
—	—	Leyden—Rijks Ethnographisch Museum.
1	1	Liverpool—Geological Society.
1	—	Naturalists' Field Club.
1	—	London—British Association.
—	—	British Museum.
1	1	Geologists' Association.
1	1	Linnean Society.

1923-29. 1929-30.

—	—	Manchester—Geological Association.
1	—	Microscopical Society.
—	—	Marlborough College—Natural History Society.
—	—	Mexico—Instituto Geologico.
—	—	Newcastle-upon-Tyne—Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne.
1	1	Norfolk and Norwich—Naturalists' Society.
1	1	North Staffordshire—Field Club.
—	—	Norwich—Prehistoric Society of East Anglia.
1	1	Oxford—Ashmolean Natural History Society.
1	1	Perthshire—Society of Natural Science.
—	1	Stavanger—Staats Museum.
1	1	Toronto—Royal Canadian Institute.
1	1	Torquay—Natural History Society.

U.S.A.

—	1	Boston, Mass.—Society of Natural History.
1	1	Chicago—Field Museum of Natural History.
1	1	John Crerar Library and Academy of Sciences.
1	—	Cincinnati—Lloyd Library.
1	—	Madison, Wis.—Wisconsin Academy of Sciences, Arts and Letters.
1	1	Milwaukee, Wis.—Public Museum.
1	1	New York, N.Y.—Academy of Sciences.
1	1	Philadelphia—Academy of Natural Sciences.
—	—	Portland, Maine—Society of Natural History.
—	—	Rochester, N.Y.—Academy of Science.
1	1	St. Louis, Mo.—Missouri Botanical Garden.
1	1	San Diego, Cal.—Society of Natural History.
1	1	San Francisco, Cal.—California Academy of Sciences.
—	—	Staten Island, N.Y.—Institute of Arts and Sciences.
—	1	Tufts College, Mass.—Eaton Memorial Library.
1	1	Washington—U.S. Geological Survey.
1	1	Government Printing Works.
1	1	National Museum.

RULES

OF THE

Belfast Naturalists' Field Club.

As amended at Annual Meeting held 15th April, 1930.

I.

That the Society be called "THE BELFAST NATURALISTS' FIELD CLUB."

II.

That the object of this Society be the practical study of Natural Science and Archaeology in Ireland.

III.

That the Club shall consist of Ordinary, Junior, Life, Corresponding, and Honorary Members. Not more than twenty-five Ordinary Members shall be elected half-yearly. Ordinary Members shall be proposed and seconded by two existing Members on a Nomination Form to be obtained from the Honorary Secretaries. These proposals shall come before the Committee of the Club, who shall vote by ballot for or against acceptance. The names of the accepted candidates shall be submitted for election half-yearly—at the Annual Meeting in April and the Annual Conversazione in October.

Ordinary Members shall pay annually a subscription of Six Shillings, and shall on election pay an Entrance Fee of Five Shillings. Members who are twelve months in arrear in their subscriptions shall not receive any further circulars or other printed matter, and those who are two years in arrear shall cease to be members of the Club.

That the composition fee for Life Membership be Four Guineas.

Junior Members, who must be between the ages of ten and twenty-one years, shall form a Division of the Club, and may be elected at any meeting of the Club. Each member between the ages of ten and eighteen years shall be required to pay an Annual Subscription of One Shilling, and between the ages of eighteen and twenty-one years an Annual Subscription of Two Shillings and Sixpence.

On attaining their majority they shall become Ordinary Members without having to be elected or having to pay an Entrance Fee, but shall pay the Annual Membership Subscription of Six Shillings.

Junior Members shall receive printed matter of General Meetings of the Club at the discretion of the Honorary Secretary of the Junior Division, who shall be required to have obtained the consent of the lecturer or conductor of any Meeting before arranging for notices of such meeting to be sent to Junior Members. Junior Members shall not be entitled to receive Proceedings and Annual Reports of the Club. Junior Members shall not have power to vote, except within the Committee of the Junior Division. The Junior Division shall have a Committee composed of eight Members of the Club, five of whom may be Junior Members. The Chairman and Honorary Secretary of the Junior Division shall be annually appointed by the General

Committee. The Junior Division Committee shall report at each meeting of the General Committee through its own Honorary Secretary. The expenses of the Junior Division shall be a charge on general funds, and shall be regulated by the General Committee. Subscriptions shall be paid to the Honorary Treasurer of the Club.

IV.

That the Honorary and Corresponding Members shall consist of persons of eminence in Natural Science, or who shall have done some special service to the Club; that such Members may be nominated by any Member of the Club, and on being approved by the Committee, may be elected at any subsequent Meeting of the Club by a majority of the votes of the Members present. That not more than two Honorary Members be elected in any one year. That Corresponding Members be expected to communicate a paper once within every two years.

V.

That the Officers of the Club be annually elected and consist of a President, Vice-President, Treasurer, Librarian, one or two Secretaries, and a Recording Secretary, together with the Secretaries of the various Sections of the Club and Honorary Secretary of the Junior Division. That the office of President or that of Vice-President shall not be held by the same person for two years in succession. That the President, Vice-President, General Secretaries, and Treasurer be *ex-officio* members of Sub-Committees.

VI.

That the General Committee shall consist of the above-named officers with nine ordinary members of Committee, and shall hold at least eight meetings during the year; five persons to form a quorum.

That three ordinary members of Committee shall retire annually in order of seniority, those retiring being ineligible for re-election for one year. The retiring President, if not elected to a Section Secretaryship, shall be one of the three new ordinary members added to the Committee each year. Should any ordinary member of Committee fail to attend at least three of the Committee meetings held during the year his or her place may be considered vacant and other member elected to fill the position. No ordinary member of Committee shall hold the post of Secretary in any of the Sections. That in the event of a vacancy occurring in the General Committee a new member may be co-opted to fill such vacancy for the remainder of the year.

That nominations for ordinary members of Committee shall be sent in writing to the Secretaries on or before the 21st day of March in each year. That the privilege of nominating members of Committee shall be held by all Ordinary and Life Members of the Club. That the names of those members so nominated shall be published on the circular convening the Annual Meeting, at which the Ordinary Members of Committee shall be elected by ballot. That should the necessity arise the retiring members of Committee shall be balloted for.

VII.

The Committee may from year to year appoint Sectional Secretaries and Committees, as may be considered desirable, to further original investigations in any one or more departments of the Club's work. Members desiring to join any Section shall pay an additional subscription of One Shilling to the Secretary of the Section (such

subscription to be used for the benefit of the Section). No financial responsibility to be incurred by any Sectional Secretary, Sectional Committee, or any Officer of the Club without the previous approval of the Club's Committee.

VIII.

That the members of the Club shall hold at least Six Field Meetings during the year, in the most interesting localities, for investigating the Natural History and Archaeology of Ireland. That the place of meeting be fixed by the Committee, and that five days' notice of each Excursion be communicated to Members by the Secretaries. That each of the Sectional Secretaries shall be made responsible for the running of one Regular Excursion, the programme to provide study in the subject appertaining to the Section, and that any additional Special Excursions shall be arranged by the Secretaries of the Sections concerned.

IX.

That regular Monthly Meetings be held during the Winter Session from November till April, inclusive, for the purpose of reading Papers; such Papers as far as possible to be original, and to treat of the Natural History and Archaeology of the district. That the Papers to be read be secured by a Standing Organising Committee, consisting of the Hon. Secs. of the Club, together with the Sectional Secretaries and a Chairman. That between the Regular Monthly Meetings of the Club Special Meetings open to all Members of the Club may be held, at which Papers of specialised interest would be discussed. That the Sectional Secretaries shall each be responsible for the providing of a programme for one Regular and one Special Meeting, one Regular and one Special Meeting to be arranged by the Hon. Secs. Any extra Meetings shall be arranged by the Organising Committee, if desired. That the programme for the Winter Session shall be completed by the date of its First Meeting and issued to all Members. That each notification announcing a Regular Meeting or Excursion shall also serve to notify Members of the next Special Meeting or Excursion.

X.

That the Committee shall, if they find it advisable, offer for competition Prizes for the best collection of scientific objects of the district; and the Committee may order the purchase of maps, or other scientific apparatus, and may carry on geological and archaeological searches or excavations, if deemed advisable, provided that the entire amount expended under this rule does not exceed the sum of £10 in any one year.

That the General Committee may offer from time to time such prize or prizes as they may deem desirable for competition among Schools in or near Belfast.

XI.

That the Annual Meeting be held during the month of April, when the Report of the Committee for the past year, and the Treasurer's Financial Statement shall be presented, the Committee and Officers elected, Bye-laws made and altered, and any proposed alterations in the general laws, of which a fortnight's notice shall have been given, in writing, to the Secretary or Secretaries, considered and decided upon. The Secretaries to give the Members due notice of each intended alteration.

XII.

Members of other Irish Field Clubs, residing temporarily or permanently in or near Belfast, may be enrolled as Members of the Club without election or entrance fee on production of a voucher of membership of another Club, and without subscription for the current year, on production of a receipt showing that such subscription has been paid to another Club. Failing the production of such receipt, the usual subscription for the current year to be paid to the Treasurer on enrolment. The names of Members so admitted to the Club to be published with the notice of meeting following the date of their enrolment.

XIII.

That, on the written requisition of twenty-five members, delivered to the Secretaries, an Extraordinary General Meeting may be called, to consider and decide upon the subject mentioned in such written requisition.

XIV.

That the Committee may be empowered to exchange publications and reports, and to extend the privilege of attending the Meetings and Excursions of the Belfast Naturalists' Field Club to Members of kindred societies, on similar privileges being accorded to its Members by such other societies.

RULES FOR THE CONDUCTING OF EXCURSIONS.

I. The excursion to be open to all Members, each one to have the privilege of introducing two friends. The time for commencing as many as possible of the Half-day Summer Excursions to be not prior to 2 p.m.

II. A Chairman to be elected as at ordinary meetings.

III. One of the Secretaries to act as Conductor, or, in the absence of both, a Member to be elected for that purpose.

IV. No change to be made in the programme, or extra expense incurred, except by the consent of the majority of the Members present.

V. No fees, gratuities, or other expenses to be paid except through the Conductor.

VI. Every Member or Visitor to have the accommodation assigned by the Conductor. Where accommodation is limited, consideration will be given to priority of application.

VII. Accommodation cannot be promised unless tickets are obtained before the time mentioned in the special circular.

VIII. Those who attend an excursion without previous notice will be liable to extra charge, if extra cost is incurred thereby.

IX. No intoxicating liquors to be provided at the expense of the Club.

LIST OF MEMBERS

For the year ending 31st March, 1930.

Any change in the Address of Members should be at once notified
to the Honorary Secretary.

The Dates prefixed to Members' names signify date of Election.

HONORARY MEMBERS.

1893. Bell, Robert, 64 Newington Avenue.
 1926. Bennett, S. A., B.A., B.Sc., 184 Waterloo Road, Burslem, Stoke-on-Trent.
 1914. Charlesworth, Professor John K., D.Sc., Ph.D., F.G.S., Queen's University, Belfast.
 1866. Swanston, W., F.G.S., Farm Hill, Dunmurry.
 1902. Scharff, Robert F., B.Sc., Ph.D., F.L.S., M.R.I.A., F.R.S.A.I., 15 Sandycove Avenue West, Dun Laoghaire, Co. Dublin.
 1926. Osborne, T. E., F.R.S.A.I., 4 College Square North.
 1880. Welch, R. J., M.Sc., M.R.I.A., 49 Lonsdale Street.

CORRESPONDING MEMBERS.

1926. Foster, Rev. Canon George, B.D., Strangford.
 1923. The Honorary Secretary of the Route Naturalists' Field Club.
 1929. " " " Limavady " "
 1929. " " " Derry " "

LIFE MEMBERS.

1903. Stelfox, A. W., A.R.I.B.A., M.R.I.A., 14 Clareville Road, Rathgar, Dublin.
 1893. Wilson, Alex. G., J.P., M.R.I.A.

ORDINARY MEMBERS.

1923. Acheson, F. W., 37 Osborne Park.
 1927. Adair, W. R., Breezemount, Donaghadee.
 1921. Adams, John, Auburn, Cranmore Park.
 1915. Aird, Hugh, 10 King Street.
 1917. Alderdice, R. Sinclair, F.C.I.B., 9 Wellington Place.
 1922. Alexander, K. M., 30 Kelvin Parade.
 1929. Alexander, W. J., 9 Skegoniel Avenue.
 1923. Anderson, Hugh, Knocknagoney, Martinez Avenue.
 1911. Anderson, Miss S. M., 4 Church View, Holywood.
 1912. Andrews, Miss E. L., Inla, Comber.
 1922. Andrews, J. D., Uraghmore, Comber.

1912. Andrews, Dr. Marion B., D.P.H., Orsett, Derryvolgie Avenue.
 1913. Andrews, Michael C., M.R.I.A. do.
 1927. Annesley, Frazer M., Cathmore, Portadown.
 1926. Archer, Miss Eva, 43 Central Avenue, Marlborough Park.
 1923. Armour, W. S., 5 Crescent Gardens.
 1927. Armstrong, J. I., B.Sc., Students' Union, Queen's University.
 1927. Bailey, C. S., Methodist College.
 1922. Baird, Sir H. H., K.B.E., D.L., Park Lodge, Antrim Road.
 1927. Baker, Geo. Edgar, Lismacue, Belmont Road.
 1929. Barbour, S. C., B.A., Riverdale, 112 King's Road, Knock.
 1927. Bateman, J. V., Altona, 214 Upper Newtownards Road.
 1929. Beattie, Robert, Horse Shoe Road, Ballysillan.
 1929. Beattie, Mrs. do. do.
 1924. Beatty, C., J.P., Ledlie Villa, Coalisland.
 1926. Beck, Miss Louise, M.Sc., Low Wood, Shore Road.
 1928. Bell, N. G., The Hut, Whitehouse.
 1913. Bell, D. M., Bloomfield, Bryansford, Co. Down.
 1923. Bell, David S., High Street, Carrickfergus.
 1896. Bell, E. George, Solitude, Lurgan.
 1929. Bell, Miss M., 66 Bryansford Road, Bangor.
 1926. Bennett, Mrs. Eva, 9 Ashfield Drive, Glandore Avenue.
 1929. Berkeley, Joseph, J.P., Nursery Vale, Comber.
 1922. Berringer, Joseph, 36 North Street.
 1924. Berry, Col. R. G. J. J., M.R.I.A., F.R.S.A.I., Ardaluin, New-
 castle, Co. Down.
 1914. Bird, Miss, 5 Courtland Avenue, Norbury, London, S.W.16.
 1928. Black, Miss Josephine, 15 College Gardens.
 1924. Black, Robert A., Landscape Terrace, Crumlin Road.
 1923. Black, A. Hamilton, 5-11 Callender Street.
 1929. Black, Thomas, 27 Agnes Street.
 1898. Blackwood, Miss Sarah, 6 College Green.
 1923. Blair, John T., 33 Ophir Gardens.
 1921. Blair, Mrs. J., 557 Oldpark Road.
 1925. Blair, John H., Gleneste, Dunmurry.
 1925. Bowman, Miss Jeannie, 25 Mountview Street.
 1922. Bowman, Robert R., 2 Osborne Drive, Bangor.
 1923. Boyd, Miss K. St. Clair, Chatsworth, 12 Malone Road.
 1922. Boyd, J. St. Clair, do.
 1923. Boyd, James, Raleigh House, Queen Street.
 1924. Boyd, Richard R., 2 Alliance Avenue.
 1897. Boyd, Miss E. S., Springfield Lodge, Guernsey.
 1894. Boyd, W. C., J.P., Thornhill, Farnham Road, Bangor.
 1923. Boyle, Miss Elizabeth, 18 Florenceville Avenue, Ormeau Road.
 1916. Bradley, Miss L. T., Haypark House, Knock.
 1922. Brown, James R., M.A., B.Sc., 32 Maryville Park.
 1923. Brown, Miss Ella K., Shore Road, Newtownards.
 1929. Brown, Miss Sarah, Craiglea, Holywood.
 1923. Brown, W. P., LL.B., Beresford House, Coleraine.
 1883. Brown, Thomas, J.P., 102 Donegall Street.
 1928. Buchanan, Miss Nora K., Laurel Villas, 1 Winston Gardens.
 1921. Bulla, A. Crennell, Rydal, Lisburn Road.
 1929. Bunting, Miss M. C., B.A., Riverdale, 112 King's Road, Knock.
 1923. Burns, Miss E., 13 Ponsonby Avenue.
 1929. Burns, Wm. G., 116 Walmer Street, Ormeau Road.
 1899. Burrowes, W. B., F.R.S.A.I., Ballynaveigh House.
 1929. Byrne, Mrs. Mary, 24 College Square North,

1927. Cairns, Hugh, B.Sc., Mountcairn, Comber.
 1909. Campbell, John, Albert Brickworks, Carrickfergus.
 1917. Campbell, James, Jennymount Mill.
 1921. Campbell, A. Albert, F.R.S.A.I., Drumnaferrie, Rosetta Park.
 1921. Campbell, Mrs. A. Albert, Drumnaferrie, Rosetta Park.
 1929. Campbell, Langford, 51-53 Corporation Street.
 1921. Campbell, Mrs., 20 Wellington Park Avenue.
 1927. Campbell, Miss H., Methodist College.
 1891. Capper, J. Malcolm, 14 Linenhall Street.
 1923. Carpenter, D. J., A.R.C.Sc.L., Belfast Royal Academy.
 1925. Carlile, Miss Maria B., 198 Ravenhill Road.
 1904. Carmody, The Very Rev. W. P., M.A., Downpatrick.
 1923. Carrothers, E. N., L. M. & S. Railway, York Road.
 1914. Carter, Charles S., 25 Donegall Street.
 1922. Cassidy, Wm., Greenmount, Dunmurry.
 1926. Charley, E. J., J.P., Seymour Hill, Dunmurry.
 1919. Chase, Capt. C. D., M.C., M.A., Campbell College, Belmont.
 1926. Chase, Miss Bessie, 226 Stranmillis Road.
 1928. Chambré, Mrs. V., Hawthorn Hill, Killeavy, Co. Armagh.
 1920. Chandler, W. P., 1 Ailsa Terrace, Strandtown.
 1920. Chandler, Mrs. do.
 1901. Cheyne, H. H., Roseneath, Bangor.
 1922. Christy, Wm., 8 Edenderry Gardens, Tennent Street.
 1920. Churchill, Miss, 34 Hamilton Road, Bangor.
 1922. Clarke, George W., M.B.E., 39 Adelaide Park.
 1928. Cleland, Mrs. Mabel, 13 Eglantine Gardens.
 1894. Cleland, Alex. M.T., 28 Green Road, Knock.
 1894. Cleland, Mrs. Annie, 28 Green Road, Knock.
 1890. Cleland, James A., Brooklyn, Holywood.
 1917. Close, R. M., M.R.I.A., 13 Donegall Square North.
 1925. Coates, Geo. D., Fruit Hill, Andersonstown.
 1922. Cole, Francis J., Ardmara, Greenisland.
 1928. Collins, Miss Nora, 42 Fitzwilliam Street.
 1923. Colton, John M., Lisbawn, Hawthornden Road.
 1925. Common, Robert H., Tynemouth, Larne Harbour.
 1922. Corry, Hon. Cecil, Castle Coole, Enniskillen.
 1924. Cosgrave, John, F.L.A.A., Alliance Avenue.
 1925. Cosgrave, Mrs. Magee, 49 Alliance Avenue.
 1923. Cowden, William, 46 Cliftonpark Avenue.
 1906. Cowie, James, 83 Osborne Park.
 1921. Cowie, Henry, L. M. & S. Railway Co. (N.C.C.) Terminus.
 York Road.
 1928. Craig, Miss Isa, Willowpark House, Whiteabbey.
 1921. Crawford, W. M., B.A., F.E.S., F.Z.S., Orissa, Marlborough
 Park, S.
 1921. Crawford, Lieut.-Col. F. H., C.B.E., Cloreen, Malone Road.
 1922. Cromie, A. G., Seeburg, Castle Avenue.
 1922. Cromie, Miss Maud, do.
 1922. Crothers, Miss, 7 Easton Crescent, Cliftonville Road.
 1913. Cunningham, Miss M. E., F.R.S.A.I., Glencairn.
 1884. Cunningham, Rt. Hon. Samuel, Fernhill.
 1915. Cunningham, Josias, R.N.V.R., M.B.O.U., Fernhill.
 1924. Cupples, Miss Diana, 124 Malone Avenue.
 1921. Cuthbert, Rev. A., M.A., Rocklands Manse, Carrickfergus.
 1924. Dallas, Miss, 2 Bloomfield Gardens.
 1923. Davin, Miss Adelaide G., D.Sc., Glenmore Lodge, Lambeg.

1921. Davison, A. H., F.A.I., 32 Wellington Place.
 1928. Davison, Mrs. Mina, 1 Salisbury Villas, Salisbury Avenue.
 1925. Dawson, Col. W. R., M.E., M.R.I.A., 18 Brock Street, Bath.
 1921. Deane, Arthur, M.R.I.A., F.R.S.E., Art Gallery and Museum, Belfast.
 1919. Deans, T. M., LL.D., Academy House, Rosetta.
 1925. Deans, Samuel A., L.D.S., 141 Ormeau Road.
 1891. D'Evelyn, A. M., M.D., Ballymena.
 1925. Dickey, John, 71 Malone Avenue.
 1925. Dickey, Dr. Wm., 86 Antrim Road.
 1921. Dinsmore, J. A. S., 28 & 30 Castle Place.
 1922. Dobbin, Miss, 60 University Street.
 1921. Doggart, Henry, 29 Sicily Park.
 1921. Donaldson, Dixon, Dunoon, Islandmagee, Co. Antrim.
 1922. Douglas, John, Helen's Bay.
 1922. Downer, W. H. N., Chrome Hill, Lambeg.
 1928. Duff, Hugh, J.P., Coagh, Co. Tyrone.
 1908. Duncan, W., 54 Textile Buildings, Donegall Square North.
 1928. Dunlop, Miss May L., 142 University Street.
 1929. Dunlop, Miss Norah, 34 Landsdowne Road.
 1927. Dunne, Herbert Elsmere, 62 Victoria Road, Gt. Crosby, Lancs.
 1927. Dunne, Mrs. Edith Mary do.
 1921. Dunwoody, W. J., 10 Marine Parade, Hollywood.

 1921. Earls, Professor J., B.A., 31 Ravenhill Park.
 1928. Eason, H. J., F.R.A.I., 144 Agincourt Avenue.
 1925. Edgar, Miss Elizabeth, 30 Cyprus Avenue.
 1923. Elliott, Miss Annie, B.A., Ardree, Bloomfield.
 1908. Elliott, E. J., J.P., 4 Bain's Place.
 1924. Elliott, Miss Isabel, Belfast Shorthand Inst., Royal Avenue.
 1925. Erskine, Miss Nessie, c/o Educational Authorities, Perth, W. Australia.
 1927. Erskine, Miss Jeannie, 42 Botanic Avenue.
 1927. Ewing, John, Saxonia, Strandtown.

 1924. Fallon, Mrs., 25 St. James' Park.
 1928. Ferguson, Miss Elizabeth, 8 Ashdene Drive, Glandore Avenue.
 1924. Ferguson, Mrs. G. W., Carnamenagh, Antrim Road.
 1926. Fernan, Charles, Fernlea, Cliftonpark Avenue.
 1927. Field, Robert J., 791 Lisburn Road.
 1897. Finlay, Miss A. M., Kells, Abbott's Langley, Herts.
 1927. Fisher, Ernest, Inisglas, Greenisland.
 1929. Fisher, Miss Nora, do.
 1906. Finlay, Arch. H., A.C.G.I., A.I.E.E., Willesden, Hollywood.
 1928. Fleming, W. M'K., 20 Knutsford Drive.
 1928. Forbes, Thos., 18 Wellington Park Avenue.
 1928. Forbes, Mrs. T., do.
 1903. Foster, Mrs. N. H., Hillsborough.
 1923. Foster, A. R., B.A., Principal, Royal Academy, Cliftonville.
 1929. Foster, Rev. R. H., B.A., D.C.M., Craigmere, Aghalee, Lurgan.
 1924. Frame, Miss H., 15 Skegoniel Avenue.
 1924. Frame, Miss M., do.
 1929. French, Henry, 18 Twickenham Street.

 1892. Gamble, Miss, Lorne, Craigavad.
 1927. Gardner, Miss E. R., 1 Wellington Park.
 1917. Gibson, Mrs., Bonnington, Landsdowne Road.

1921. Gibson, Samuel, J.P., Summer Hill, Dunmurry.
1923. Gilchrist, David, 24 Ravenhill Park.
1921. Gilliland, W. T., B.Sc., 7 Wellington Place.
1926. Glasgow, Henry L., Cookstown, Co. Tyrone.
1928. Glendinning, Miss M. E., 26 Sans Souci Park.
1921. Glendinning, R. G., Jun., Lennoxvale.
1921. Gore, W., F.R.S.A.I., Municipal College of Technology.
1929. Gracey, Walter, Kilrea, Co. Derry.
1921. Graham, Thomas, Ivy Bank, Salisbury Drive.
1922. Graham, Miss M. E., 241 Sundridge Terrace, Mountpottinger.
1924. Graham, Mrs. Sarah, 138 Dunluce Avenue.
1928. Graham, Miss Joanna, Clondara, Martinez Avenue.
1891. Green, Mrs. Isaac, Hawthornden, Knock.
1920. Greenham, Miss J. C., 44 Orient Gardens.
1895. Green, W. A., F.R.S.A.I., Dunmore, Antrim.
1921. Green, H. P., Limehurst, Holland Park, Knock.
1923. Greer, Thomas, J.P., Milton, Sandholes, Dungannon.
1901. Greeves, J. Theodore, Nendrum, Knockdene Park.
1917. Greeves, J. R. H., B.Sc., Coolnashee, Crawfordsburn.
1918. Greeves, O. V., Colin House, Dunmurry.
1901. Greeves, W. Leopold, 11 Ormeau Avenue.
1924. Gregg, Rev. W. J., B.A., 8 Wheatfield Gardens.
1929. Gregg, Mrs. Deborah, do.
1926. Gribbon, John, 38 Lavinia Street, Ormeau Road.
1924. Griffith, Henry A. C., Belleville, Cliftonville Road.
1924. Griffith, Miss Grace A., Belleville, Cliftonville Road.
1924. Griffith, Miss K. E., Belleville, Cliftonville Road.
1923. Grimshaw, Reginald W., 13 Rossmore Avenue.
1929. Grossenbacher, Miss Hanny, 1 Salisbury Villas, Salisbury Ave.
1926. Haffern, Wm., 23 St. Ives Gardens, Stranmillis Road.
1926. Hale, Thomas, 5 Mervue Street.
1926. Hall, Miss Janie M., Moyrusk, Moira.
1908. Hamilton, Miss, Melrose, Ardlee Avenue, Holywood.
1923. Hamilton, T. S., Presbyterian Church House.
1928. Hamill, Miss Nana, 42 Sans Souci Park.
1925. Hanna, Mrs. S. M., 5 Salisbury Villas, Salisbury Avenue.
1920. Harbinson, Wm., Highbury, North Road.
1924. Harbinson, Miss Margaret, Doonvarna, Landsdowne Road.
1926. Harris, J. B., 12 Ravenhill Gardens.
1921. Hayward, H. Richard, Hopefield House, Antrim Road.
1921. Heenan, Miss J., 11a Stranmillis Road.
1923. Henderson, J. A. D., 11 Norfolk Drive.
1915. Herdman, Miss E. W., Fountainville, University Road.
1876. Heron, F. Adens, D.L., F.R.S.A.I., Maryfield, Holywood.
1922. Heron, Miss, Teagheen, Evelyn Gardens, Antrim Road.
1921. Hewton, J., M.P.S.I., 315 Ormeau Road.
1905. Hobson, Mrs., Aitemmach, Crawfordsburn, Co. Down.
1927. Hodgson, Lionel C., M.A., 59 Wellington Park.
1920. Hodgson, Mrs., do.
1921. Hoffman, E., Leamington, 7 Old Cavehill Road.
1895. Hogg, A. R., 10 Thorndale Avenue.
1908. Hogg, D. J., 16 Kansas Avenue.
1903. Holland, Miss, Highbury, Cadogan Park.
1904. Holland, Frank J., Fairyhill, Osborne Gardens.
1928. Holmes, Miss Margaret, Denholme, Diamond Gardens, Finaghy.
1929. Horscroft, George, Botanic Gardens Park.

1914. Houston, James Dick, Northern Bank House, Kilrea, Co. Derry.
 1921. Houston, H. S., Slievemara, Jordanstown, Co. Antrim.
 1926. Howard, S. R., 53 Donegall Place.
 1927. Hughes, Joseph, 28 Peel Street.
 1922. Hunter, Dr. J. A., Kirkinner, Balmoral Avenue.
 1929. Hunter, Dr. R. H., 20 Haypark Avenue.
 1929. Hyslop, Jas. L., 91 Eglantine Avenue.

 1925. Irwin, Wilson, Rosssnall, Helen's Bay.
 1923. Iten, Mrs., 18 South Parade.

 1927. Jackson, James, Winona, Princes Gardens, Larne.
 1923. Jackson, M., Maze, Hillsborough.
 1909. Jenkins, W. A., 6 Elmwood Terrace.
 1925. Jennings, Victor G., Wellcroft, Sandown Road, Knock.
 1901. Johnson, Rev. W. F., M.A., F.E.S., M.R.I.A., Roxboro Terrace, Rostrevor.
 1906. Johnston, F. W., The Lodge, Spa, Ballynahinch.
 1921. Johnston, E. C., F.R.S.A.I., Lyncote, Helen's Bay.
 1923. Johnston, Miss Jean, Nortavin, Donegall Park.
 1916. Johnston, Miss M. B., do.
 1925. Johnston, Mrs., 30 Sharman Road.
 1928. Johnston, Mrs. R. W., B.A., 505 Falls Road.
 1922. Johnston, T. J., 19 Ashley Gardens.

 1924. Keenan, Miss Mary, 75 Dublin Road.
 1917. Keiller, W., 11 Chichester Street.
 1922. Keith, S. S., 180 Crumlin Road.
 1921. Kennedy, R. N., J.P., Avonmore Lodge, Balmoral.
 1922. Kerr, Charles, E., B.A., Mount Carmel, 134 Upper Newtownards Road.
 1929. Kerr, Mrs. C. E., Mount Carmel, 134 Upper Newtownards Road.
 1927. Kerr, David S., 1 College Square E.
 1926. Kevin, Miss Kathleen, B.A., 8 University Street.
 1923. Kevin, Miss M., do.
 1929. Kidd, Rev. G. F., 19 Bootle Street.
 1923. Kitchen, Gilbert Ingram, 64 Roseleigh Street.
 1925. Knox, Harry, 60 Henderson Avenue.
 1928. Knox, Miss Lily, 41 Cliftonville Road.
 1877. Kyle, R. A., 17 Wellington Park.

 1928. Lamont, Miss H., 58 Eia Street, Antrim Road.
 1823. Lauder, William, Public Library, Donegall Road.
 1920. Lavery, W. H., 27 Eglantine Avenue.
 1928. Lavery, Miss M. Beatrice, do.
 1923. Law, Wm., 52 Hopefield Avenue.
 1923. Lawlor, H. C., M.A., M.R.I.A., 14 Windsor Avenue.
 1923. Lawlor, Mrs. H. C., do.
 1920. Lepper, R. S., M.A., LL.M., F.R.His.S., F.R.S.A.I., Elsinore, Crawfordsburn.
 1922. Leetch, Miss Elizabeth, Cullybackey, Co. Antrim.
 1929. Lewars, David B., 17 Dundela Gardens.
 1923. Leyden, Miss Margaret M., Belgrave, Bloomfield.
 1926. Liggett, Miss Margaret M., 109 The Mount.
 1915. Lindsay, Mrs., 3 Lower Crescent.
 1922. Logan, James, M.A., F.R.G.S., Greystone, Ravenhill Park.

1921. Loughridge, James, 52 Elmwood Avenue.
1918. Lowry, Miss, Hazelwood, Bloomfield.
1910. Lowry, Miss L., do.
1893. Lowry, D. E., J.P., Oakley, Strandtown.
1903. Lowry, James, Llewellyn Avenue, Lisburn.
1926. Macdonald, David, Castle Road, Comber.
1915. Maconachie, Rev. D. H., B.A., B.D., The Manse, Holywood.
1915. Maconachie, Mrs., The Manse, Holywood.
1905. Macoun, Mrs. S. M., Clanrolla, Windsor Park.
1922. Magill, Hugh, 217 Cavehill Road.
1927. Magill, Mrs. Edith, 9 Wilmont Terrace, Lisburn Road.
1926. Maguinness, Miss Kathleen, 40 Cabin Hill Gardens.
1920. Magowan, A., 2 Easton Crescent.
1924. Major, Miss Anna M., Ulai, Holywood.
1921. Major, Miss Olga, Ulai, Holywood.
1905. Malcolm, Miss Susan, Downshire Road, Holywood.
1921. Malcolm, Bowman, M.I.C.E., M.I.Mech.E., Inver, Ashley Park.
1901. Malcomson, Herbert T., M.B.O.U., 32 Arthur Street.
1880. Marsh, Mrs. Glenlyon, Holywood.
1922. Marshall, Rev. R. L., M.A., LL.D., Maghera, Co. Derry.
1922. Marshall, Miss M. E., 82 Ardenlee Avenue.
1924. Martin, Miss Josephine C., 12 Glandore Avenue.
1929. Martin, George E., 62 University Street.
1923. Martin, Mrs. Kathleen R., 17 College Gardens.
1924. Martyn, Douglas, 30 Orient Gardens.
1929. Matchett, Miss Clara, 21 Windsor Road.
1916. Masterson, Miss, 93 Wellesley Avenue.
1915. Mawdsley, Miss, 28 Green Road, Knock.
1908. Maxwell, Henry, Dunalbine, Deramore Park.
1923. Maxwell, Joseph, J.P., Fierna, Osborne Park.
1923. Maxwell, Miss F. E., do.
1925. Maxwell, Miss Isabella, 10 Luxor Gardens.
1927. Maxwell, W. C., A.R.I.B.A., 29 Donegall Street.
1903. Mayne, H. Horner, 24 Elmwood Avenue.
1917. Megaw, Rev. W. R., B.A., The Manse, Rosetta.
1920. Megaw, I. J., Dunavon, Knockdene Park.
1923. Mercer, Prof. P. S., "Hanging Leaves," Carrickfergus.
1923. Mercer, Mrs. S., do.
1906. Millar, Thomas O., 306 Antrim Road.
1929. Millar, S. W., 33 Bloomfield Gardens.
1907. Milligan, Miss Bessie, 22 Ravenhill Gardens.
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11 MAY 61

NATURAL
HISTORY.

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PROCEEDINGS AND ANNUAL REPORTS



SERIES II.
VOL. IX.



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1930-31
1931-32.

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PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1931
(SIXTY-EIGHTH YEAR).

SERIES II.
VOLUME IX.



PART III.
1930-31.



EDITOR:

W. M. CRAWFORD, F.E.S., F.Z.S.

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SIXTY-EIGHTH YEAR, 1930-31.

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BRITISH
MUSEUM

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NATURAL
HISTORY.

PROCEEDINGS.

SUMMER SESSION.

BESSBROOK AND DISTRICT.

Date—24th May, 1930. Conductor—D. J. Carpenter. Number present, 52.

Starting from College Square soon after 9 a.m. the party went to Newry, where Miss Barcroft and Mr. John S. W. Richardson took on the duties of conductorship.

After seeing the Clontygora Dolmen the members visited the Pillar Stone of Kilnasaggart in the Moyry Pass. Its inscriptions in Ogham and Latin say it was erected by one Ernian. A short walk brought the party to Moyry Castle, built in 1601 by Lord Mountjoy to defend the pass, then known as the "Gate of Ulster." After lunching here the Motte and Bailey of Rosskeag was viewed, and in this neighbourhood *Nepeta glechoma* (ground ivy), *Lamium album* (white dead nettle), and *Cotyledon umbilicus* (pennywort or navelwort) were found in abundance, as well as the less common *Chelidonium majus* (great celandine), *Veronica hederæfolia* (ivy-leaved speedwell), and *Asplenium adiantum-nigrum* (black spleenwort).

The next stop was made at the Lislea granite quarry, where fine specimens of the junction of a diorite dyke with the granite were obtained. Leaving Lislea and passing Camlough Lake and village, the party arrived at Bessbrook, where they were the guests of Mrs. Williams, The Woodhouse.

After tea ten new junior members were elected; and, on the proposal of Mr. Carpenter, seconded by Mr. Lepper, a vote of thanks was passed to Mrs. Williams, Miss Barcroft, Mr. John S. W. Richardson, and the ladies who presided at the tables. A visit to the beautiful rock garden at The Woodhouse and to Derramore Old House concluded the sight-seeing. One of the features of the fine sunny day was the beautiful scenery of the granite country. The views, made magnificent by the massiveness of Slieve Gullion, the sharp conical outline of Sturgan and the curious rugged ridges of Dromintee, were greatly admired.

NENDRUM.

Date—7th June, 1930. Conductors—Mrs. C. R. Nodder and Major C. Blakiston Houston, M.P. Number present, 80.

The club held a half-day excursion to the ruins of Nendrum monastery on Mahee Island, Strangford Lough. Travelling in two 'buses and several private cars, the party numbered about eighty.

Major Blakiston-Houston gave a general discourse on the known and the conjectured history of the ruins and conducted the party over the sites.

Tea was provided at the Nendrum Teahouse.

Junior members who attended the excursion were provided with sketch maps of the ruins with explanatory and historical notes.

KNOCKDHU AND THE SALLAGH BRAES.

Date—14th June, 1930. Conductor—C. R. Nodder. Number present, 24.

The party went by motor coach to Carncastle, leaving the Old Museum at 9-30 a.m. and taking the inland road to Larne. At Carncastle half an hour was spent in various ways; some members visited the old Churchyard, others chatted to the villagers and others botanised, finding the *Ceterach* fern on old walls. A further short distance in the motor coach brought us to Stewart's farm, at the foot of Knockdhu. There we were joined by a large party (about 40) of the Route Naturalists' Field Club, under the guidance of the Rev. E. M. Gumley.

The seven-chambered souterrain was then visited and lunch was taken.

The main party, led by Robert Bell, now proceeded southward, below the cliffs. Five or six different zeolites were found in the cavities in the basalt. A smaller party climbed the slopes of Knockdhu and found the Mountain Avens (*Dryas octopetala*) blooming freely in its well-known station. This party walked over the moor to Loch Dhu and then descended the cliffs and looked, without success, for *Pyrola secunda*. *Arenaria verna* was found in full flower on the basaltic rocks.

All met again near the south end of the Braes and picked up the motor-coach near Killyglen School. After taking tea at Murray's Café, Ballygally, a visit was made to Ballygally Castle. Our thanks are due to Mrs. Moore, the present occupier, for showing us over the castle, now in excellent condition.

The botanists found many interesting plants in the garden, including a yew tree said to be three or four hundred years old.

MARINO.

Date—Tuesday evening, 17th June, 1930. Conductor—R. J. Welch, M.Sc., M.R.I.A. Number present, about 45.

A large number turned up for this excursion, which was a joint one of both Senior and Junior Members. The main feature of the visit was to see the large areas of mussel-beds between tides, many of them very old and much distorted. The acid impure water at the head of the estuary has much eroded the bulk of the old shells, and small pearls are common in them. Some good specimens were found, though the majority were rather dark-coloured and not perfect in shape. A few other shells occur in the beds, mainly *Cardium edule* and *Tapes pullastra* and myriads of dead shells of *Spisula subtruncata*, evidently washed out of the estuarine clay deposits, as no living specimens have been taken in N.E. Ireland for over 30 years past. The Carboniferous and Permian outcrops on the shore nearby were also visited, and a number of specimens of the boring mollusk *Pholas* dug out. On the way back to tea at Holywood the ancient Church was visited and the fine cross-sculptured slab built into the south wall inspected.

DOWNHILL AND MAGILLIGAN.

Date—28th June, 1930. Conductors—S. D. Glassey and Joseph Skillen. Number present, 44.

The party travelled by the 9-15 train, and on arrival at Bellarena paid a visit to the ruins of the Church of Tamlaght-Ard. This church had been erected on part of the foundation of the monastery founded by St. Colomcille in the 6th century A.D. A section of the original foundation remains exposed. Members were shown the grave of rock hewn stones where St. Aidan, Bishop of Lindisfarne, is said to have been buried. St. Cadan or St. Catan is also said to have been buried here.

Members were interested in the simpler grave of Denis Hampson, the once famous blind harper of Magilligan, whose harp is preserved as an heirloom in the Bruce family. St. Aidan's Well, on the roadside opposite the church, was also pointed out.

Leaving St. Aidan's the party proceeded to Duncrun Hill, the site of an abbey founded by St. Patrick. A stone,

which formerly stood in the ruins, is now erected in the fence, facing what was the ancient burial ground. A cross in relief is carved on the stone showing two bars distinctly. It is said that there were three bars originally.

A flintworker's settlement and factory site was visited. Portion of a granite erratic was noted; the original block weighed about two tons.

Returning to Mr. O'Doherty's house an unusual type of spinning wheel was exhibited. The ladies of the party displayed a keen interest in it.

From Duncrun the party travelled by the high road to Benone.

A pleasant walk brought them to the foot of Magilligan ridge, from which point a good view of the "Merrick Stone" was obtained.

About twenty members undertook the strenuous walk to the top of the "Castle Rock" at Craig. Those who made the journey were recompensed for their arduous climb by the wonderful panoramic view of the Donegal, Derry, and Antrim coast line, from Innishowen to Fair Head.

From Benone the journey was continued to Downhill Hotel for tea.

After tea, Mr. Glassey related the legend attached to the "Bacan na bo," rock (Tether stone of the cow), and referred to the number of place names in County Derry deriving their origin from the cult of the cow in the bronze age period.

The return to Belfast was made by the 7-9 train.

COMBER ESTUARY.

Date—1st July, 1930 (Tuesday evening). Conductor—The President and J. Ritchie. Number present, 27.

This was an evening excursion, members going by train to Comber and walking some seven or eight miles to the estuary and rath and back to Comber station. *Geranium striatum* was seen in its old station and by the mud flats *Aster tripolium* and *Limonium humile* were in flower.

CHESTER AND DISTRICT.

Date—12th to 15th July, 1930. Conductor—J. A. S. Stendall, M.R.I.A. Number present, 40.

This year's long excursion went far afield. Chester and district was the objective and a very full four days were spent under the leadership of J. A. S. Stendall. Over 40 members and friends travelled and on arriving in Chester on 12th July little time was lost in getting to work. In the

morning a visit was made to the Town Hall where a civic reception was given, Alderman C. P. Cockrill acting for the Mayor who, everyone regretted to hear, was indisposed. Accompanying the Alderman was Emeritus Professor Robert Newstead, F.R.S. (President, Chester Society of Natural Science), and the Deputy Town Clerk. The welcome was more than cordial and was ably responded to by R. S. Lepper, M.A., and Colonel R. G. Berry, M.R.I.A. Following, an inspection was made of the ancient city regalia and charters. After lunch the Cathedral was visited and thoroughly explored under the able guidance of Minor Canon Fisher, who, it transpired, has family connections with Belfast. Tea, and then the city walls, guided by Professor Newstead, Major Bennett Bamford and Mr. W. J. Williams, M.A. Roman work was pointed out and a recently discovered base of a corner tower thoroughly examined. This latter had been excavated under Professor Newstead's supervision and is to be preserved. Members passed by the various Mediæval towers, the castle, and continued by St. John's Church, of early foundation. After dinner the Grosvenor Museum was visited, where Professor Newstead delivered an admirable lecture entitled: "The Ancient Fortress of Deva." A very long day, but enjoyable withal.

Sunday morning was free, but in the afternoon the majority of the party went by motor through Delemere Forest and on to Bunbury Church, which was ably described by Mr. Frank Simpson, F.S.A., and Mr. Wm. Cullimore, M.A., who acted as leaders for the day. From Bunbury tracks were made for Beeston Castle, of Norman date, perched on a solitary hill rising some 400 feet above the Cheshire Plain. Tea was taken here, and a thorough inspection of the noble ruins afterwards made. The famous well (366 feet deep and only 7 feet or so across) was examined, lighted paper torches being cast down and watched until bottom was reached—a dreadful drop!

Monday was *the* big day; by motor, first to Hawarden, where the Right Rev. Wentworth Shields received the visitors in St. Deiniol's Library and showed the treasures therein contained. Subsequently alongside the old castle and under the shelter of a dripping beech Mr. Bell Jones, F.S.A., gave a most interesting account of Hawarden throughout the ages. The journey continued to Rhydymwyn, where Dr. Wilfrid Jackson, F.G.S. (of Manchester University Museum), joined the company. The Leete Valley was entered and soon rain gave way to sunshine, much to everyone's relief. Dr. Jackson lucidly described

the geological features of the district, and biologists enjoyed themselves amid the wild life displayed on all sides. Lunch was taken at the Loggerheads, after which the way went by Caergwrle Castle to Wrexham, where the parish church was inspected. Onward to Aldford, and Eaton Park was entered, tea being taken at Iron Bridge. Afterwards the good ship "Ormonde II." conveyed the party down the beautiful river Dee, Chester being reached at scheduled time.

To Mr. W. W. Siddall (Hon. Treas., C.S.N.S.) hearty thanks were accorded for the very able way in which he had conducted throughout the day.

At night civic representatives, officers of the local scientific and archæological societies, including Archdeacon and Mrs. Paige Cox, Mr. David L. Miln, Hon. Sec., C.S.N.S., Mr. Alfred Newstead, Curator, C.S.N.S., and all local leaders were entertained to dinner, speeches of goodwill and comradeship being the order of the evening.

The last day was spent in a tour of the Wirral Peninsula, including Sunlight Soap Works and the Lady Lever Art Gallery, the latter under the guidance of the Curator, Mr. Sydney Davison. The submerged forest of Meols, was visited, followed by Hoylake, West Kirby, Parkgate (all having Irish associations) and on to Chester where tea was taken within an ancient crypt. Mr. Frank Simpson was leader for the day. So ended a memorable excursion, only briefly described of necessity.

It is only right to add that grateful thanks were expressed to the officers and members of the Chester societies for their valuable assistance throughout the excursion, and especially to Mr. David L. Miln, Mr. W. W. Siddall and Mr. W. J. New (Assistant Secretary, C.S.N.S.), whose labours in preparing preliminary details were highly appreciated.

COOKSTOWN DISTRICT.

Date—9th August, 1930. Conductors—Miss W. J. Sayers, B.A., Thomas Greer, J.P. and H. L. Glasgow. Number present, 37.

Members and friends met at the Old Museum and travelled by motor coach and private cars via Antrim and Cookstown to Loughry demesne. Here, by kind permission of Miss Laing, the Old Manor House, now the Ulster Dairy School, was inspected, Mr. Glasgow taking the opportunity of reading an interesting account by Mr. Shan F. Bullock of the Lindesays of Loughry Manor and the friendship of Robert Lindesay and Dean Swift. The former is the

“eminent lawyer” referred to in Sir Walter Scott’s *Life of Swift*, where mention is also made of Swift’s summerhouse at Loughry, which he used as a study, and in which he is said to have written one of his works. This arbour was visited by the Club, many of whom took photos of the neat little summerhouse on the high bank above the river. From here the archæologists walked to the Giant’s Grave, a little-known but fine dolmen with a large capstone at a low elevation. Before entering Desertcreat Rectory grounds, the local conductors pointed out Donaghrisk graveyard, the site of a church founded by St. Patrick. After an “al fresco” lunch the party made their way to Tullyhogue Fort, from which there is an extensive and most beautiful view. After the outer and inner rings of the rath had been explored, Mr. Glasgow gave a full and interesting account of the history of the fort, showing how the Kings of Tirowen came here to be crowned until, in 1602, Lord Mountjoy broke the coronation stone. Reference was made to the greatness of Tullyhogue when it became the capital of Tirowen after the sack of the Grianan of Ailech by the O’Briens and their allies, and the suggestion was thrown out that the Kingdom of Tullyhogue had been co-extensive with the old rural deanery of Tullyhogue, i.e., that part of the Diocese of Armagh which lies in Co. Down and Co. Tyrone. Passing through the village of Desertcreat and the site of the famous battle where in 1281 the O’Neills, with the help of the English, repulsed the O’Donnells of Tirconail and the O’Briens, the party entered Desertcreat churchyard. Here Rev. W. E. R. Scott, M.A., pointed out the grave of Patrick O’Donnelly, Bishop of Dromore, and his brother Turlough, Bishop of Derry in the troubled times of the Penal Laws, and inside the church the curious bilingual inscription on the gravestone of Alexander Saunderson, who died in 1633. From Desertcreat the Club drove to Milton, where Mr. and Mrs. Greer most hospitably entertained them to tea and gave them an opportunity of viewing Mr. Greer’s splendid collection of Irish lepidoptera. After tea, at a short meeting of the Club, a hearty vote of thanks was proposed by R. S. Lepper to Mr. and Mrs. Greer, Miss Laing, Mr. Glasgow and Rev. W. E. R. Scott, to which Mr. Greer and Mr. Glasgow briefly replied. From Milton Mr. Greer conducted the botanists to the floating island of Ardpatrik, where the Bog Myrtle grows to the height of 6 or 8 feet and *Equisetum variegatum* and *Cladium mariscus* were to be seen in abundance. *Cardamine amara*, *Fagus heterophylla* and

Liriodendron tulipifera had also been seen, the first-named by the Ballinderry river, the others in the Rectory grounds.

The return journey was made through Stewartstown and by the south of Lough Neagh, so that the lake was completely encircled by the party during the day.

DUNLUCE AND WHITE ROCKS CAVES.

Date—Saturday, 23rd August, 1930. Conductors—E. N. Carrothers and R. J. Welch, M.R.I.A. Number present, —

The members travelled to Portrush by the 1-15 train and took the electric tram for Dunluce. The main object of the excursion was to see the great improvements made in this new "National Monument," by the Ancient Monuments Committee, Northern Ireland, and the many interesting features which the repair work had revealed. After this inspection, which included some of the recently uncovered original pavements, R. S. Lepper gave a short talk on the history of the Castle down the centuries. After leaving the rock portion of the Castle, the extensive buildings on the mainland were examined. Tea was partaken of in the "Dunluce House" tourist tea-house, and the journey home brought the day's run to an end.

PORTAFERRY AND ARDS PENINSULA.

Date—6th September, 1930. Conductor—C. E. Kerr. Number present, 45.

The party started at 2 p.m. and proceeded by motor-omnibus to Greyabbey, where a halt was made to inspect the ruined Abbey and Cistercian monastery. From there the members went to Ballywalter, taking the coast road through Ballyhalbert, where they saw the gallan or standing stone and a fine tumulus. Kirkistone Castle, built in the reign of James I., was then reached and, through the courtesy of the custodian, the interesting keep and well-preserved Bawn or fortified courtyard were inspected.

After passing Cloghy Bay, with its fine strand, a halt was made at the old church and graveyard of Ardmacaisse, now called Slanes. Thence the road round the southern extremity of the peninsula to Portaferry was followed, the stone-circle and earthwork called Tara Fort being seen on the way.

Tea was enjoyed at the Nugent Arms Hotel and was followed by a business meeting, after which the ruined gable of the old church of Templecranney was inspected and the long journey home commenced, a visit being paid *en route* to the Abbey, the old remains of which were seen by the courtesy of Mr. Frank Savage, of Ardquin.

MAGHERAMORNE.

Date—20th September, 1930. Conductor—Professor J. K. Charlesworth. Number present, 65.

The special object of this excursion was to study on the spot the questions that led to a discussion (vide *Irish Naturalists' Journal*, Vol. III., pp. 74-82 and 101-105) regarding the origin of some "Flour of flint" found there by A. M'L. Cleland. The conductor and Mr. Cleland were both listened to with great interest by the large assemblage of members present.

The journey to and from Magheramorne was made by train.

MONTALTO.

Date—27th September, 1930. Conductors—E. N. Carrothers and A. E. Muskett. Number present, 60.

Through the kindness of the Countess of Clanwilliam the Club visited Montalto on Saturday afternoon. This visit took the form of a fungus foray, and during the afternoon the grounds and woods were thoroughly explored for any growth which might, by hook or by crook, be called a fungus. From this point of view the efforts of the searchers were amply rewarded, and among the collection which was made four or five species were found which had not previously been recorded for Ireland.

The pleasure of the afternoon was greatly added to by Lady Clanwilliam's kindness in inviting the party to tea, and at six o'clock, when the train left Ballynahinch for Belfast, a unanimous vote of thanks was accorded to her Ladyship and the staff at Montalto for affording the members of the Club such an ideal afternoon both from the point of view of work and pleasure.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session began with a Conversazione held in the Assembly Hall, Fisherwick Place, on Tuesday, 21st October, 1930, at which there was a very large attendance of members and friends. Tea was served from 7 to 8 p.m.

The Exhibits included:—

BOTANY.—The President, some regional British floras and European plants; J. R. H. Greeves, Australian wild flowers; E. N. Carrothers *Allium oleraceum* and *Ornithopus perpusillus* from Co. Down; Miss M. W. Rea, Marine Algae and Slime Fungus; Miss W. J. Sayers, methods of seed dispersal; C. R. Nodder, living specimens of Composites and Conifers; W. G. Burns, specimens of commercial timber; Ministry of Agriculture, Q.U.B., diseases of plants; Mrs. Nodder, winter table decorations, using local plants.

GEOLOGY.—A. H. Davison, zonal Liassic fossils and minerals from Diamond Rocks; A. M'I. Cleland, disintegrated basalts, Tripoli rock, and rocks from Magheramorne; Department of Geology, Q.U.B., specimens illustrating mode of occurrence of fossils.

ZOOLOGY.—J. A. S. Stendall and J. Orr, seaside birds; Jos. Cunningham, birds; Dr. R. H. Hunter, mammalian skulls to show functional changes in tooth form, microscopic demonstrations and photographs; Rev. Canon Foster, moths including *Convolvulus* and Death's Head from Co. Down; Dr. H. P. T. Rohleder, Python and Puff Adder skins from Central Africa; D. J. Carpenter, some common Galls; Department of Zoology, Q.U.B., mussels from Belfast Lough and Harbour; Miss Nora Fisher, Irish species of chiton and living *Planorbis corneus* from Cushendall; W. M. Crawford, Swiss butterflies and two *Convolvulus* Hawk Moths from Belfast and one Death's Head from Portrush; R. J. Welch, living freshwater Mollusca; Professor Gregg Wilson, microscopic exhibit.

ARCHÆOLOGY.—Robert Bell, rude early flint implements; Dr. Alan Parke and A. Pringle, objects from sandhill sites near Gweebarra river, Co. Donegal; Walter Gracey, flint axes from Bann Valley; R. J. Welch, types of flint

implements from Ballycastle; Dr. J. B. Stewart, bronze weapons, tools, flint artifacts, etc.; Mrs. Nodder, Gleave from Hillsborough.

MISCELLANEOUS.—S. W. Millar, properties of liquid air; Miss Ethne Glendinning, old German music box; Miss Peggy Loewenthal, Irish and other shell necklaces.

JUNIOR DIVISION.—Labelled Tree Twigs—Shown by winner of Miss Sayers' Prize; Pressed Flowers, Beatrice Searle, William Smith, Vivian Greene; Collection of Fruits, Vivian Greene; Antiquarian Photographs, with Notes, R. Noël Gregg; Antiquarian Sketches, with Notes, Samuel Kernaghan; Sea Shells and Crabs' Backs, Kathleen Maxwell; Minerals, Ranald MacDonald; North of Ireland Land and Freshwater Shells, John M'Williams; Seashore Shells, Sam Kernaghan; Water-Colour Drawings of Flowers, Ethne Glendinning, Lois M'Keown; Stuffed Alligators and an Alligator's Egg, from British Guiana, Agatha R. Crawford; Nature Diaries, Jean Cole, Agatha R. Crawford, Felicity Bolton; Collection Social Wasps, including all six Irish Species, Agatha R. Crawford; Minerals and Fossils, Robert and Alistair Stephen; Worked Flint Flake, from raised beach at Holywood, Robert Stephen; Stick Insects and Eggs, Matilda and Elizabeth Shaw; 1930 Collection of Birds' Eggs, Campbell Douglas Deane; Botanical Exhibit, Nora Stendall; Geological Exhibit, shown by William Swanston Hanna, loaned from collection of William Swanston, F.G.S.; Collection of Coins, Robert Stephen; Skin of Garter Snake, from Canada, Felicity Bolton; 1930 Collection of Grasses, Jack Blair; Mementoes of the Season's Junior Excursions, Mrs. Nodder; Seaweeds, Peggy Tweedie; an attempt to show, diagrammatically, the development of life from earliest forms, Alan E. Conelly.

Captain C. D. Chase presided at the business meeting held at 9-10 p.m. He congratulated the Club on the fine exhibition and appealed for subscriptions to the fund for the restoration of Bonamarghy, a Franciscan monastery at Ballycastle. A gift was then handed to Mrs. Nodder as a mark of appreciation of her work on behalf of the Junior Division of the Club. 24 new members were elected.

The Chairman then distributed the prizes for the summer work and also those won at that exhibition. The awards were as follows:—Water-colour drawings of flowers—1, Lois M'Keown; 2, Ethne Glendinning. Best collection of pressed flowers—1, Wm. Smith; 2, Jean Cole; 3, Vivian

Green. Identification of twigs—1, Alice Glendinning; 2, Jean Cole and Katherine Maxwell. Collection of British marine shells—Katherine Maxwell. Best collection of seaweeds—Peggy Tweedie. Best collection of minerals and fossils—Robert and Alistair Stephen (jointly). Best essay on Natural History Department, Belfast Museum, Felicity Bolton. Photographs or sketches of Irish Antiquities—1, Noël Gregg; 2, Sam Kernaghan. Collection of Natural History specimens—T. C. Teuton. Best living Botanical exhibit—1, Nora Stendall; 2, Beatrice Searle. Best living Zoological exhibit—1, Michael Clarke; 2, Tony Searle. Best surprise exhibit—Winners: Beatrice Searle, Marjorie Cleland and Murphy Nodder.

SOME RANDOM THOUGHTS ON PHILOSOPHY AND SCIENCE.

The first ordinary meeting of the Winter Session was held in the Old Museum on Tuesday, 11th November, 1930, at 8 p.m., when the Presidential Address was delivered by Captain C. D. Chase, M.C., M.A.

The President began by stating that he was going to address his remarks in the first instance to the Junior members of the Club. This was meant as a compliment to Mrs. Nodder on the admirable work she had been doing for the past few years as secretary of the junior section.

After a few words on the merits of hobbies for young and old, the President touched on the broad differences between the philosophical and scientific outlooks, and suggested it would perhaps be well for young people to try and acquire the best of both outlooks. Ultimate reality, a phrase so often on the lips both of philosophers and scientists, probably lies not in the material but in the spiritual sphere. Time and space, or our conceptions of time and space, are limited, and however much science may extend the boundaries of, both, the problem, viewed materially, remains insoluble.

In that other great problem of the origin and nature of life, science is found to have no answer, although it can throw much light on some phases of the development of life.

Evolution, which took the scientific world by storm last century, is being examined anew and in many respects is found wanting.

On the conclusion of the lecture, J. A. S. Stendall expressed the thanks of the meeting to the President, and Miss Nora Stendall voiced the appreciation of the members of the Junior Division,

LIFE AND THE UNIVERSE.

The second ordinary meeting of the Session was held in the Old Museum, on Tuesday, 25th November, 1930, when Dr. R. Lloyd Praeger delivered a lecture under the above title, the chair being taken by the President (Captain C. D. Chase).

Probably the most interesting part of his address was a mental excursion into the possible future of the earth. The sun, he said, was now very old. Its life was far advanced, and its end was near as compared with the length of time since its beginning. But with millions of years still to go this approaching end did not enter into human problems, in which a mere thousand years was an age.

The earth, said Dr. Praeger, would probably continue habitable for a period perhaps three thousand times as long as that which had elapsed since life first appeared upon it—three million times as long as man's present sojourn on this planet.

"Slowly the sun's heat will diminish," he said. "Slowly the earth will draw further away from the sun, the source of all life, but so gradually that, by human standards, no change will be observed. What changes will even a fraction of that immense period bring forth in the teeming mysterious life of our earth? If the past foreshadows the future all things will change again and again."

No organisms, and least of all the highest, had persisted for even a considerable part of the three hundred million years of the habitable earth. In tens of thousands of different forms, species, and families had appeared, only to disappear again. At present the vegetable and animal worlds were dominated respectively by flowering plants and man. Would these also give way in their turn to something higher, he asked, and move towards some far-off, divine event to which the whole creation moved, or would life, even as it had ascended ever since the earth became habitable, eventually descend as the sun's heat diminished, and cease at length among lowly organisms such as those with which it began. Science, he declared, could not answer.

Alluding briefly to the possibility of animal life on the other planets, he said the earth was probably the only speck of matter in the universe on which there existed what they called life,

It was, perhaps, 300,000 years ago that man appeared on the earth, one of the latest comers of all. Only during the last 100th part of his sojourn here had he reached the stage of endeavouring to understand the mysteries with which he is surrounded. It was only during the last ten generations that he had been able, through the invention of the telescope and spectroscope, to probe deeper into these mysteries.

There was a very large attendance and those voicing their appreciation of the lecture or asking questions were:—R. J. Welch, J. A. S. Stendall, Rev. W. R. Megaw, and A. H. Davison.

THE SEASON'S LANTERN SLIDES.

A special meeting of the Club was held in the Old Museum, on Tuesday evening, 2nd December, 1930, at 8 p.m., when the slides relating to the past season's excursions, and which could not be shown on the occasion of the conversazione, were thrown on the screen. The description of each set of slides was given by the conductor of the particular excursion shown. This made a most interesting meeting and the attendance was large and appreciative.

THE ORIGIN OF THE IRISH FAUNA AND FLORA.*

The third ordinary meeting of the Winter Session was held in the Old Museum, on Tuesday evening, 16th December, 1930, the President (Captain C. D. Chase) in the chair, when Professor J. Kaye Charlesworth, D.Sc., M.R.I.A., F.G.S., gave a most interesting lecture on the above subject to a very full house.

The substance of the lecture was as follows:—We possess no knowledge of the animal and vegetable life of Ireland immediately before the onset of the Glacial Period, when an ice-sheet of great thickness completely covered the country and annihilated all pre-existing life within its confines. Since life, except in its most lowly forms, was impossible upon the surface of the ice-sheet, and completely impossible beneath the ice-sheet itself, survival of the pre-glacial life could only take place beyond the present shores, on an ice-free strip, if any such existed.

* Those wishing a fuller exposition of this subject should see Professor Charlesworth's paper in the Proceedings of the Royal Irish Academy, Vol. XXXIX, Section B, pages 358-390.

The level of the sea around the Irish coasts during the Glacial Period was about 50 fathoms lower than it now is. The closeness of the depth-line of 50 fathoms to the present coast and the great extension of the ice-sheet beyond the coast render such survival off the west coast impossible; off the southern coast just possible. The climate of such an ice-free strip off the south of Ireland was so severe that only Arctic forms could survive.

A considerable fauna and flora entered Ireland during the following inter-glacial period over a land connection with Britain, and a portion doubtless survived during the ensuing period of glaciation when the edge of the ice lay along a line joining Wexford with the mouth of the Shannon.

The greater part of the fauna and flora, however, immigrated after the final recession of the ice, when a plain watered and drained by a mighty river, with wide lake-like expanses united Britain and Ireland. The immigration was practically brought to an end when submergence, aided by marine erosion and tidal scour, effected the present separation.

The lecture was listened to with close attention and elicited questions from J. A. S. Stendall, A. M'I. Cleland, L. C. Hodgson, A. H. Davison, Rev. W. R. Megaw, James Jackson, Joseph Skillen, and T. J. Johnston, the lecturer giving a reply to each one.

THE OGHAM INSCRIPTIONS.

The fourth ordinary meeting of the Winter Session was held in the Old Museum on Thursday, 12th February, 1931, when Mr. M. A. O'Brien, M.A., Ph.D., lectured on the above subject. The lecture was illustrated by lantern slides.

[No abstract received.]

FOLK-LORE.

The fifth ordinary meeting of the session was held in the Old Museum, on Tuesday, 17th February, 1931. The President (Captain C. D. Chase) was in the chair and the lecturer was Mr. E. J. M'Kean, K.C.

Folk-lore, the speaker said, was a very wide subject, covering all the past activities of men and the survivals of forgotten and exploded beliefs in obscure customs, which had survived in contemporary usages, found among the more backward individuals of the community. He then

discussed the legends of Dunluce, Shane's Castle, and the famous Ulster mansions. There was the story of James Haddock, of Malone, one that had been investigated by Jeremy Taylor when Bishop of Down. The "Beresford" or "Tyrone" story was supposed to have taken place near Dromore, a secretaire which was said to have come into the story being still in existence. Many other ghost and banshee stories were told by the speaker, who concluded that though many customs and beliefs were disappearing, there was still plenty of material to be collected.

On the motion of R. J. Welch, seconded by J. Skillen, a hearty vote of thanks to Mr. M'Kean was passed.

PLEISTOCENE CAVE ANIMALS AND THEIR PRESENT RELATIVES.

At the sixth ordinary meeting of the Winter Session, held in the Old Museum, on Tuesday evening, 24th March, 1931, a lecture under the above title was delivered by Dr. J. Wilfrid Jackson, F.G.S., of Manchester, the President (Captain C. D. Chase) being in the chair.

Dr. Jackson remarked that had there been Natural History Societies or Field Clubs in the old Stone Age, when Western Europe was experiencing glacial conditions, the members would have been able to study a most interesting and extraordinary fauna, and one very different from the present. The "English" societies of those far-away days, especially those in the South, would have had a varied group of animals and birds at their disposal, though, perhaps, not quite so rich in species as on the Continent. On the other hand, the naturalists of Ireland and Scotland would not have been so fortunate, owing to the limited number of forms.

Continuing, Dr. Jackson said that the only evidence pointing to the possible existence of man in Ireland about the end of the palæolithic period was that obtained at Kilgreany Cave, County Waterford, in 1928, when a human skull and other bones were found embedded in stalagmite and associated with remains of reindeer, giant Irish deer, Arctic lemming, etc.*

Among the animals dealt with by the lecturer were the hippopotamus, hyæna, lion, mammoth, woolly rhinoceros,

* v. *Irish Naturalists' Journal*. Vol. III., p. 118, Kilgreany Cave, Co. Waterford, by A. W. Stelfox, M.R.I.A.,

reindeer, and various small rodents, including lemmings and pika, or tailless hare. The geological history, past distribution, and present habitat of their relatives were described, and some reference made to the former occurrence of some of those animals in Ireland during the Ice Age.

The mammoth seemed to have lived in all parts of Ireland, as its remains are recorded from Antrim, Cavan, Galway, Waterford, and Cork. In the famous Castlepook Cave in the latter county its bones and teeth, said the lecturer, were found in great abundance, associated with those of the reindeer, and, more interesting still, the *hyæna*. The latter was discovered there in 1904, and up to the present had not been met with elsewhere in Ireland. Other important and interesting discoveries in the Castlepook Cave were the remains of the Scandinavian and Arctic lemmings. Bones and jaws of the arctic form had also been found in the Kesh Caves, County Sligo, and in the Edenvale Caves, County Clare.

After passing in review the various species represented by remains from cave deposits, the lecturer went on to say that, though direct evidence was lacking, it might reasonably be assumed that the warm fauna comprising the hippopotamus and others, which was abundant in Southern England in early pleistocene times, also reached Ireland, but was destroyed or driven out again at the period of maximum glaciation. The advent of this fauna into England was clearly at a period when Britain was intimately connected with the Continent; but could they be sure that Ireland was similarly connected with England at this stage? It might be that Ireland was cut off by sea when the hippopotamus and its associates, together with early palæolithic man, inhabited Southern Britain and the Continent. Strangely enough the hippopotamus had never been detected in Scotland, its northern limit being Yorkshire.

It was pointed out by Dr. Jackson that Ireland resembled Scotland in a most remarkable way from the fact that its first pleistocene fauna appeared to have been a glacial one, of which the mammoth was a prominent member. This cold or mammoth fauna appeared in full force in Southern England in the Mousterian stage of man's cultural development, and evidence seemed to point to the fact that this was contemporaneous with a glaciation of wide extent. It was considered that at this stage only the Southern part of England was ice-free, and that the whole of Ireland was covered by the ice-sheet. On the disappear-

ance of the ice or during some stages of its retreat it was assumed that certain of the species belonging to this fauna spread northwards and westwards, and there was evidence that the mammoth, together with the reindeer, giant Irish deer, hyæna, lemmings, &c., reached Ireland. The mammoth and reindeer also spread into Southern Scotland along with the woolly rhinoceros (not found in Ireland) and others, but the hyæna did not appear to have reached that country. The lion, associated with this fauna in Southern England, did not seem to have extended into Ireland or Scotland.

Concluding, Dr. Jackson said that from studies made by many workers it was evident that renewed glacial conditions towards the end of the old Stone Age played some part in the ultimate extinction of many of the old forms, including the mammoth; but many other species seemed to have spread from the Continent to Great Britain before the land connection was severed. A number of these reached Ireland before the final separation of that country by the formation of the Irish Sea.

The Right Hon. Samuel Cunningham proposed a vote of thanks to the lecturer, and Colonel Fred Crawford seconded. R. J. Welch and J. A. S. Stendall also spoke to the paper.

Dr. Jackson, replying, said he hoped that before long it would be possible to make investigations into the cave fauna of the North of Ireland, which might have the result of bringing forward the remains of extinct animals, and thus throw a great deal of light on the conditions of life in this country in past ages.

TALKS AND SLIDES.

A special feature during this winter season was the holding of extra meetings for talks in connection with the different branches of the Club's activities, the talks being largely intended for juniors and beginners in the various subjects and were all illustrated by lantern slides. The particulars of these talks were as follows:—

6th January, 1931—Geology, by A. M'I. Cleland.

3rd February—Fossils, by D. J. Carpenter.

3rd March—Bird Ancestry and Modern Forms, by J. A. S. Stendall.

31st March—Talks, with lantern slides, by A. A. Campbell, Joseph Skillen, Mrs. Nodder, C. R. Nodder, A. M'I. Cleland, R. J. Welch, and A. R. Hogg.

14th April—Botany, by C. R. Nodder.

ANNUAL MEETING.

The Annual Meeting was held in the Museum, College Square North, on Tuesday, 21st April, 1931, at 8 p.m., the Vice-President (Mr. C. E. Kerr) in the chair. The following Reports were presented:—

ANNUAL REPORT.

The Committee have pleasure in presenting the Sixty-eighth Annual Report and in testifying to the continued prosperity of the Club.

The membership stands as follows:—5 Honorary Members, 4 Corresponding, 2 Life, 500 Ordinary, 143 Juniors, a grand total of 654.

During the past year 47 members were elected, 18 resigned, 9 died, 27 were struck off the roll in accordance with Rule III. for non-payment of subscription.

The Field Clubs affiliated with us are, as in last report—Route, Limavady, and Londonderry.

We deeply regret to record the deaths of a number of our members, more especially T. Edens Osborne, who was our Honorary Treasurer for some years; Hamilton M'Cleery, J.P., who many years ago gave frequent lectures during the winter session and microscopic demonstrations at the annual conversaziones. He was one of the oldest members, being elected in 1884, thus remaining a member for forty-seven years; and S. Freeland, whose early death we much regret.

On 24th November last a Survey Committee was formed to note and catalogue the antiquities within our district, A. Albert Campbell being elected Chairman of this committee and Miss M. Gaffikin the Hon. Secretary. On the same date Miss Gaffikin was appointed Joint Hon. Secretary of the Archaeological Section. This survey was long overdue and the information that the committee will accumulate and file for future use will be original work of great value.

Dr. Praeger, a former Secretary and President, was elected this year to the high office of President of the Royal Irish Academy.

During the year eleven meetings of committee were held, and the following were the attendances:—

W. M. Crawford	...	11	Robert Bell	...	7
J. A. S. Stendall	...	11	G. C. Reilly	...	7
Joseph Skillen	...	11	R. J. Welch	...	7
A. M'I. Cleland	...	10	D. J. Carpenter	...	6
A. H. Davison	...	10	C. E. Kerr	...	6
C. R. Nodder	...	10	R. S. Lepper	...	6
Jas. Orr	...	8	Rev. W. R. Megaw	...	6
Mrs. Nodder	...	8	J. R. H. Greeves	...	5
Captain Chase	...	7	E. N. Carrothers	...	4
A. Albert Campbell	...	7	Prof. Charlesworth	...	4
Miss Nora Fisher	...	7	Miss M. Gaffikin (co-		
Miss Sayers	...	7	opted on 24th Nov.)		4

The Lectures given during the Winter Session were as under, and the attendance was good as usual. They were mostly illustrated by lantern slides, the lantern being manipulated by A. R. Hogg in his usual efficient way.

1930.

November 11—Presidential Address:

“Some Random Thoughts on Philosophy and Science.”

„ 25—“Life and The Universe.”

R. LL. PRAEGER, D.S.C., B.E., M.R.I.A.

December 16—The Origin of the Irish Fauna and Flora.

Professor J. KAYE CHARLESWORTH, D.S.C., M.R.I.A., F.G.S.

1931.

January 6—Talk on Geology.

A. M'I. CLELAND.

February 3—Talk on Fossils.

D. J. CARPENTER, A.R.C.SC. (L.)

„ 12—The Ogham Inscriptions.

M. A. O'BRIEN, M.A., PH.D.

„ 17—Folk-Lore.

E. J. M'KEAN, K.C.

March 3—Talk on Bird Ancestry and Modern Forms.

J. A. S. STENDALL, M.R.I.A.

„ 24—Pleistocene Cave Animals and their Present Relatives.

J. WILFRID JACKSON, D.S.C., F.G.S.

(Manchester Museum).

„ 31—Talks, with Lantern Slides.

Various Members of the Club.

April 14—Talk on Botany.

C. R. NODDER, M.A.

There were twelve excursions held during the year as follows:—

- 24th May, 1930, Bessbrook and District.
- 7th June, Nendrum (half day).
- 14th June, Sallagh Braes.
- 17th June, Marino (evening).
- 28th June, Downhill and Magilligan.
- 1st July, Comber Estuary (evening).
- 11th to 15th July, Chester.
- 9th August, Loughrey and Tullyhogue.
- 23rd August, The Whiterocks and Dunluce (half day).
- 6th September, Portaferry (half day).
- 20th September, Magheramorne (half day).
- 27th September, Fungus Foray to Montalto.

We desire to return our warmest thanks to the following for kindness shown during the summer excursions, especially to Countess Clanwilliam for admission to Montalto demesne, and Mrs. Williams, The Woodhouse, Bessbrook, who entertained the members of the Bessbrook excursion to tea; also Miss Barcroft and Mr. John S. W. Richardson of Bessbrook; Mr. O'Doherty, Magilligan; Prof. Robert Newstead, F.R.S., Mr. David Miln, F.L.S., Mr. W. W. Siddall, Bishop Wentworth Sheals, Mr Sydney Davidson, Mr. Frank Simpson, F.S.A., all of Chester; Mr. Dodds, Portaferry; and the British Portland Cement Co., Magheramorne. To the Press also we return our thanks for reporting our meetings.

The Annual Conversazione was held in the Assembly Buildings on 21st October, 1930, the attendance being well up to the average.

After a welcome to members and their friends by the President, and the distribution of prizes won by the Juniors, 24 new members were elected.

The Committee desire to return their warmest thanks to the donors of the prizes, who were The President (2), Vice President (2), G. C. Reilly (2), Miss Fisher, Miss Sayers, Prof. Charlesworth, W. M. Crawford, A. A. Campbell, A. H. Davison, C. R. Nodder, R. S. Lepper, J. Orr, J. R. H. Greeves, and J. A. S. Stendall.

DECEASED MEMBERS.

Chas. S. Carter.
 Sam Freeland.
 J. C. Houston, M.B.
 Frank Kirkpatrick.
 Captain Stoupe M'Cance.
 J. E. M'Ilwaine, M.D.
 H. M'Cleery, J.P.
 T. Edens Osborne.
 Miss Smiley.

HONORARY LIBRARIAN'S REPORT.

Proceedings from exchanging societies are being bound and made available for ready reference. I am endeavouring to complete sets where parts are wanting, and can report that this project is proceeding satisfactorily. It is hoped that the Museum Library, where our library is now housed, will be open to the public at an early date, with an assistant always present to attend to the requirements of those seeking information.

The usual exchanges have been received, a list being appended (page 175). Two new exchanges have been effected, with the Barrow Naturalists' Field Club and Scientific Association and the Swansea Scientific and Field Naturalists' Society.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF HON. RECORDING SECRETARY.

Weather conditions during the past year differed very little from those of the preceding twelve months, the early part of the year being remarkable for the absence of rain and the latter part scarcely less remarkable for its prevalence.

There was a general tendency to lateness in the arrival of summer bird visitors and the appearance of flowers, due, no doubt, to the cold winds that prevailed in the spring not only here but in Great Britain and the Continent.

The earliest local records for bird visitors are:—

Chiffchaff—27th March, 1930, Warrenpoint.

Willow Warbler—27th March, Belfast.

Swallow—30th March, Belfast.
 Corncrake—1st April, Ballintoy.
 Sand Martin—4th April, Warrenpoint.
 Cuckoo—9th April, Killyleagh.
 House Martin—23rd April, Killyleagh.
 Whitethroat—4th May, Warrenpoint.
 Swift—6th May, Warrenpoint.
 Sedge Warbler—11th May, Warrenpoint.

The Fulmar Petrel, *Fulmarus g. glacialis* L. was found nesting on the Giant's Causeway headlands in July, by Miss Agatha R. Crawford. W. M. Crawford has reported two specimens of *Convolvulus Hawk-Moth*, *Sphinx convolvuli* L. taken in Belfast. Another example of this species was recorded from Newtownards by Mr. J. G. Rhynehart. *Planorbis corneus* L., a mollusk only previously recorded in Ireland from Co. Kildare and Queen's County, was found by Miss Nora Fisher inhabiting the pond in the grounds of the Glenville Hotel, Cushendall, probably introduced. Several highly important botanical discoveries have been made. Norman Carrothers found the Bird's-foot, *Ornithopus perpusillus* L. growing on stony ground near sand dunes at Newcastle, Co. Down, in August. Hitherto this species was not known in Ireland to grow north of Co. Dublin. The same observer is also responsible for the record of a new Co. Down plant, in the Field Garlic, *Allium oleraceum* L., found between Comber and Dundonald. The Smooth Cat's Ear, *Hypochaeris glabra* L. is reported from Portstewart by Rev. W. R. Megaw. The same observer, together with our President (Captain C. D. Chase) has recorded the rare Flat-Stalked Meadow Grass, *Poa compressa* L. from the roadside near Campbell College. Other records are:—

Upright Bedstraw, *Galium erectum* Huds. Greenisland, Co. Antrim, by Miss Nora Fisher.

Whitlow Pepperwort, *Lepidium Draba* L., Waterloo, Larne, by R. H. Common.

Dwarf Juniper, *Juniperus nana* Willd., Ballintoy, by J. R. H. Greeves. Several additions to the moss flora are given in *The Irish Naturalists' Journal*, v. III. p. 130.

J. A. SIDNEY STENDALL, *Hon. Recording Secretary*.

REPORT OF BOTANICAL SECTION.

Thirty-seven members joined the Botanical Section. Four excursions were held as follows:—

Saturday, May 31st—Killough and St. John's Point.

Tuesday evening, June 24th—Bellevue Rock Gardens.

Saturday, July 7th—River Lagan, Hillsborough to Lisburn.

Saturday, August 16th—Artoges River.

The last excursion was held jointly with the Archæological Section.

At the Killough excursion the plants noted included *Brassica alba*, *Artemisia maritima* and *Crithmum maritimum*, all of which are rare. By the Artoges River, near the small waterfall known as the Rumbling Stones, the Bird Cherry, *Prunus Padus* and the wild Guelder Rose were found. It is again a pleasure to thank Mr. Graham, of the Botanic Gardens, for conducting us on the Bellevue excursion.

C. R. NODDER, }
W. R. MEGAW, } *Hon. Secretaries.*

REPORT OF GEOLOGICAL SECTION.

Owing to various circumstances we regret to report that neither of us was able to organise any excursions during the past Session.

On September 20th a general excursion by the Club was made to Magheramorne Quarries under the guidance of Dr. J. K. Charlesworth, and as the object of this excursion was purely geological, the visit may be recorded in this report.

Recently the workings at Magheramorne Quarries have revealed several features of great interest to local geologists, full details of which are given in the *Irish Naturalists' Journal* (Vol. III., p. 74). The excursion was very well attended and during its course, Dr. Charlesworth pointed out the various features to be observed and gave his explanations regarding their geological bearings.

A recent interesting discovery made by A. M'I. Cleland may also be placed on record here, as it comes within the scope of the section.

It may be remembered that in the *Irish Naturalists' Journal* for July, 1928 (Vol. II., p. 75), there appeared a short article describing the finding of a dyke of "white" Basalt in an exposure of Triassic marl to be seen at Ligoniel. This was apparently the first time "white" Basalt had been observed in Ulster.

A short time ago when visiting Cloghan Point, near Whitehead, A. M'I. Cleland carefully examined The Riggs Dyke, a broad basaltic dyke passing through Triassic marl and running well out into deep water. The dyke forms a most dangerous reef, its outermost point being carefully indicated by a flash-light buoy.

On both faces of this dyke, where it passes through the marl, "white" Basalt is clearly revealed, the best being seen on its N.E. face. Its general appearance is that of an impure chalk; it is quite soft, and can be easily cut with a knife. It lines the basalt to the depth of about a foot.

The conclusion one may come to is that wherever a basaltic dyke is found penetrating Triassic marl, particularly if the latter is associated with gypsum, one may reasonably expect to find "white" Basalt.

This conclusion it is hoped will be strengthened by further investigations during the coming Session.

ROBERT BELL,	}	<i>Hon Secretaries.</i>
A. M'I. CLELAND,		

REPORT OF ZOOLOGICAL SECTION.

Two excursions were held during the summer, one in conjunction with the Junior Division to Marino mussel beds; and the other to the Black Arch, Larne, where the rock pools were examined. The first was fairly well attended, the second was not. The Club contains many members interested in zoology, but as each apparently has a particular subject it is extremely difficult to arrange excursions to suit all. A good deal of quiet work has, however, been done by various members, some of which has been published in *The Irish Naturalists' Journal*. A beginning has been made towards bringing the local list of marine mollusca up to date, and the land and freshwater mollusca have also received attention. The Rev. E. M. Gunley recently sent a Nudibranch from Ballintoy for identification. It proved to be *Goniodoris nodosa* Montagu, new to Co. Antrim, and previously only once recorded (by Drummond, about 100 years ago) from N.E. Ireland.

In almost every branch of zoology, particularly among the lower invertebrates, a great amount of work awaits attention.

NORA FISHER,	}	<i>Hon. Secretaries.</i>
R. J. WELCH,		

REPORT OF ARCHÆOLOGICAL SECTION.

This section held one excursion, in conjunction with the Botanical Section, during the past Session.

This outing was to the Valley of the Artoges River in Mid-Antrim.

On the way Dunclug Moat was visited, being a moat and bailey built during the Norman invasion. The party made their headquarters at the dower house of the O'Haras of Crebilly, and from there visited the Rumbling Stones, celebrated in local poetry. Close by is one of the finest earthen forts in the North of Ireland, possibly also a moat and bailey. On the way to visit the ancient church of Skerry a halt was made at Casheltown, where a well-preserved stone cashel stands, from which the townland takes its name. The party then made the arduous climb to Skerry, where the magnificent view amply paid for the exertion.

On the way homewards, a souterrain, easy of access and in good preservation, was explored, and the Holy Well, enjoyed a refreshing drink from its ice-cold water, was visited.

JOS. SKILLEN, *Hon. Secretary.*

REPORT OF SURVEY COMMITTEE.

At a meeting of the General Committee of the B.N.F.C., held on November 24th, 1930, it was resolved to appoint a committee for the purpose of making a Survey of Antiquities in the area of the activities of the Club and its affiliated societies.

The committee consists of the following:—A. Albert Campbell (Chairman); Miss M. Gaffikin (Hon. Secretary); Mrs. Anderson, Robert Bell, Captain C. D. Chase, A. M'I. Cleland, Professor J. K. Charlesworth, A. H. Davison, C. E. Kerr, D. E. Lowry, J.P.; R. S. Lepper, James Orr, Joseph Skillen, Miss Sayers, R. J. Welch.

Five Committee Meetings have been held up to date. Circulars describing the work to be undertaken were sent to members of the B.N.F.C. and its affiliated societies and to the P.E. School Teachers of Ulster, and inserted in the *Irish Naturalists' Journal*.

It was decided to record Antiquities by a Card Index system and to mark sites on 1" Ordnance Survey Maps. A grant of £20 for the purchase of a Card Index filing Cabinet, etc., was approved by the General Committee. Estimates for cabinets were received from various firms, and that of Wm. Strain & Sons, Ltd., was accepted. The requisite Ordnance Maps have been ordered and are being mounted by Messrs. Erskine Mayne.

Notes of Antiquities have already been received, and, in the district round Armagh, the work of marking hitherto unrecorded Antiquities on the Survey Maps has begun.

The Libraries, Museums and Art Committee of the Belfast Corporation has kindly granted permission to keep the records of the Survey Committee in the Library of the Belfast Municipal Museum and Art Gallery.

The thanks of the Committee are due to Professor Charlesworth for the gift of Ordnance Survey Maps; to Mr. Bonaparte Wyse for arranging for the distribution of Circulars to the National School Teachers; to Dr. Chart for lecturing on the work of the Survey Committee to the students at the Stranmillis Training College; to Mr. G. Paterson of Armagh for recording and mapping local Antiquities; also to Miss L. F. Chitty of Shrewsbury; Mr. J. Graham Callander, Director of the National Museum of Antiquities of Scotland; and Mr. H. V. Thompson of the North Staffordshire Field Club, for useful advice and suggestions.

MARY GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

This is the end of the first year's life of the Junior Division (which used to be called the Junior Section) of the Club. The new arrangement seems to be good in every way and facilitates the working of the Division.

The Junior Division Committee, consisting of Miss Sayers (Chairman), Mr. E. N. Carrothers, Nora Stendall, Jean Cole, Jack Blair, Ranald Macdonald and William Smith has met five times and has been of great assistance to the secretary.

The number of junior members in April, 1930, was 109. Nine members have resigned, three have been transferred to the senior list, forty-six new members have been elected, and the total number now is 143.

Junior members are sent notices only of those lectures that are expected to be sufficiently elementary for them. The average attendance at lectures has been about eighteen. The usual number attending excursions has been about twenty-four, although on three occasions there have been more than forty present.

Prizes for the year's work and for the *Conversazione* exhibits were presented this year by members of the General Committee even more generously than usual. In the opinion of the Junior Division Committee the awarding of these was as satisfactory as it could possibly be. Even without this incentive the exhibits at the *Conversazione* would have shown that a reasonable amount of practical nature study is being carried on; but there are still more collections made each year which for some unknown reasons are never offered for exhibition.

A collection of September blooms made by junior members was shown at the Municipal Museum in September. On the suggestion of a junior committee man, William Smith, a badge was designed for the use of junior members. Mr. E. N. Carrothers drew up the design, following the shape of the B.N.F.C. emblem drawn by John Vinycomb. It incorporates a piece of Celtic interlacing, a shape inspired by the *Dryas octopetala* and the peacock butterfly and the wording "B.N.F.C. Junior Division." The badges are in nickel silver with blue enamel and are sold at the cost price of 1s 1d each.

An innovation and a special honour was accorded to junior members by a personal invitation from the President to his inaugural lecture. His remarks were particularly framed to bring his thoughts home to junior members. Many of them have expressed their intention of reading the printed account of his lecture when they get older.

In addition to the following junior excursions, junior members were invited to the fungus foray and some of the Club general excursions. A very instructive talk on the geology of Cloughfin Port was given at the Old Museum by Mr. A. H. Davison prior to the excursion to that place.

1930.

April 12—Cloughfin Port, geological excursion, conducted by Mr. A. H. Davison and Mr. Robert Bell.

May 10—Marine zoological excursion, Marino to Holywood, conducted by Mr. R. J. Welch.

- June 5—Evening, special excursion to explore and photograph quarried esker at Lambeg. Conducted by Nora Stendall and Mr. R. J. Welch.
- June 13—Evening excursion for seaweed collecting to Whitehead. Conducted by Miss Rea, M.Sc.
- June 21—Excursion to Conlig. Conductor, Mr. D. J. Carpenter.
- Aug. 26—Evening excursion to quarry and Laganside. Conducted by Ranald Macdonald.
- Aug. 30—Botanical excursion to Mossley to collect September blooms for Museum plant tables.
- Oct. 8—Visit to Natural History Museum, with talk by Mr. Stendall. Followed by tea paid for with funds left over from Junior Section of previous season.
- Oct. 14—Miss Sayers' competition for identification of twigs. (For use of room, light and fire for this and junior committee meetings we are indebted to Mr. A. H. Davison).
- Nov. 12—Visit to Ballyclare Paper Mills. Conducted by Mr. E. N. Carrothers.
- Dec. 2—Visit to Ormeau Bakery. Tea provided by courtesy of Mr. Wilson, proprietor.

WINIFRED NODDER, *Hon. Sec.* (Junior Division.)

Dr. Hon. Treasurer's Account for the Year ending 31st March, 1931.

Cr.

Balance from year 1929-30	£25 14 11	Printing and Stationery	£44 1 0
Subscriptions received, including Arrears—		Postage	42 4 9
522 at 6/-	156 12 0	Expenses of Conversazione	15 2 8
1 at 5/-	0 5 0	Hire of Museum Rooms	22 15 0
Subscriptions paid in advance for year 1931-32—		Hire of Lantern	11 0 0
9 at 6/-	2 14 0	Junior Division Circulars	6 14 1
47 Entrance Fees at 5/-	11 15 0	Postage and Incidental Expenses, Juniors	0 16 1
Subscriptions received from Juniors—		Cost of Junior Badges	7 10 0
45 at 1/-	2 5 0	Geologists' Assoc. Proceedings	1 19 0
7 at 2/6	0 17 6	Prize Essay, Mr. Lawlor	5 0 0
Sale of Junior Badges	1 0 0	Prize Essay, Mr. Cleland	5 0 0
Balance from Excursions	21 19 1	<i>Irish Naturalists' Journal</i> , cost of Article on Magheramorne	7 15 0
Sale of Proceedings	2 0 0	Sub. to <i>English Naturalist</i>	0 15 0
Geologists' Assoc. Proceedings	1 19 0	Affiliation Fee <i>Irish Naturalists' Journal</i>	3 0 0
Grant from A. M'I. Cleland for Publication of Article on Magheramorne Quarries	5 0 0	Income Tax, 1928-29 and 1929-30	0 17 0
Interest on Deposit Account	0 9 9	Liverpool Geological Society	0 15 6
		Inscribing Prizes	2 8 9
		Addressing Circulars and Clerical Assistance	19 5 0
		Gratuity	0 10 0
		Incidental Expenses:—Wreaths, Cheque Book, Files for Correspondence, Railway Fare, Taxi Fare, Minute Book, Foolscap	4 17 10
		Balance carried forward to next Account	30 4 7
	£232 11 3		£232 11 3

In addition there remains an unexpended sum of £8 0s 7½d in hands of Mr. Bryans for postage account, and Junior Badges in hand, value £6 10s 0d.

Audited and found correct,

JAMES ORR.
C. NODDER.

20th April, 1931.

The following office-bearers were elected for the Session 1931-32:—President, C. E. Kerr; Vice-President, Professor J. K. Charlesworth; Honorary Secretary, Joseph Skillen; Honorary Treasurer, A. H. Davison; Honorary Librarian, W. M. Crawford; Honorary Recording Secretaries, Miss Nora Fisher and R. S. Lepper; Honorary Sectional Secretaries—Botanical, C. R. Nodder and Rev. W. R. Megaw; Geological, Robert Bell and A. M. I. Cleland; Zoological, D. J. Carpenter and R. J. Welch; Archæological, Miss Mary Gaffikin and A. A. Campbell; Hon. Sec. Junior Division, Mrs. C. R. Nodder; Ordinary Members of Committee (retire 1932), E. N. Carrothers, J. R. H. Greeves, and Professor Gregg Wilson; (retire 1933), Miss W. J. Sayers, Dr. J. S. Loughridge, and James Orr; (retire 1934), Captain C. D. Chase, J. A. S. Stendall, and Wm. Sweeney.

Nineteen new members of the Club were elected.

CLUB MEDALLISTS.

1923—William Swanston, F.G.S.

1924—Nevin Harkness Foster, F.L.S., M.R.I.A.

1925—Nathaniel Carrothers.

1926—Robert Bell.

1927—R. Lloyd Praeger, D.Sc., M.R.I.A.

1928—R. J. Welch, M.Sc., M.R.I.A.

1929— } No Award.

1930— }

REPORT OF THE CLUB'S DELEGATE TO THE CONFERENCE OF CORRESPONDING SOCIETIES OF THE BRITISH ASSOCIATION, 1930.

I attended in Bristol the Conference of Delegates of Corresponding Societies on September 4 and 9, Professor Patrick Abercrombie, M.A., presiding, and also the Association's General Committee on September 3 and 9, 1930; 39 delegates from 44 societies attended.

The President of the Conference opened it with a valuable and practical address on *National Parks*, a detailed summary of which, covering six pages in the Association's Report, deserves careful study. Lack of space prevents my dealing adequately with it here.

Briefly, it was an admirable review of the principles governing the selection and management of National Parks and Nature Reserves, and their relation to Regional Planning, in meeting the artistic, scientific, and recreational needs of the people.

After an interesting discussion, it was resolved:—(1) That the Council of the British Association be asked to represent to His Majesty's Government the need for the establishment of Nature Reserves in any project for the creation of National Parks.

(2) That the Council be asked to appoint a committee to take cognisance of proposals relating to National Parks by the Government and other authorities and bodies concerned, and to advise the Council to action if desirable.

The Conference then considered *Folk Museums and the need of their establishment in this country*. Miss G. V. Barnard, of the Norfolk and Norwich Naturalists' Society, gave a good account, with slides, of Strangers' Hall, Norwich, a fine fifteenth century house, opened in 1900, and given in 1922 to Norwich Corporation, with 22 rooms fitted to illustrate different periods in the life, arts and crafts of the people, by showing bygone objects in what resembles their original setting.

Professor J. L. Myres, referring to his views in the *Daily Telegraph* of 14th August, 1930, said that much the best way to preserve antiquities was to leave them where they were, and look after them. Failing that, there should be a place of refuge to which such buildings or smaller objects could be transferred. Government should finance and staff a Central Folk Museum, co-ordinated with local and definitely regional museums of antiquities controlled by local societies. If Regent's Park Botanical Garden, London, were chosen for this, special care should be taken as to how the exhibits were displayed. Meantime, local societies should prepare to receive loan collections of local antiquities from South Kensington, to equip supplementary local museums.

On September 9, at the resumed session, with Mr. T. Sheppard, Vice-President, in the chair, the Chairman opened a discussion on co-operation between scientific societies, with an account of the history of the first union of naturalists, founded in 1862, and now called the Yorkshire

Naturalists' Union, covering all Yorkshire, and including some 40 affiliated societies.

Mr. J. V. Pearman, of the South-Western Naturalists' Union, and Mr. J. H. Danvers, of the Southport Society of Natural Science, described the area, nature and work of the South-Western, and of the new North-Western Naturalists' Unions. The former includes six counties, the latter twelve and the Isle of Man.

Dr. C. Tierney, Secretary of the Conference, and representing the South-Eastern Union of Scientific Societies, which comprises some 70 societies, covering an area from Kent, Hants and Oxfordshire to Norfolk, including London, with about 10,000 members, dealt with the constitution and work of that Union.

He showed on a large map how, except for a narrow strip from the western boundary of Lincolnshire to Herefordshire and Monmouthshire, and for Central and South Wales, all England, North Wales, and the Isle of Man, were included in six areas, each with its Union of Scientific Societies. He urged that a union be formed for the midland area, and that local societies not yet in a union should join that one in their area.

R. S. LEPPER.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1932
(SIXTY-NINTH YEAR).

SERIES II.
VOLUME IX.



PART IV
1931-1932.



EDITOR:

W. M. CRAWFORD, F.E.S., F.Z.S.

BELFAST NATURALISTS' FIELD CLUB.

SIXTY-NINTH YEAR, 1931-32.

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Vice-President:

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A. ALBERT CAMPBELL, F.R.S.A.I., Drumnaferrie, Rosetta Park.

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Mrs. C. R. NODDER, The Corner House, Lambeg.

Ordinary Members of Committee:

Retire 1932.

E. N. Carrothers.
J. R. H. Greeves, B.SC.
Professor Gregg
Wilson, D.SC., M.R.I.A.

Retire 1933.

Miss W. J. Sayers, B.A.
Jas. S. Loughridge, B.SC., M.D., F.R.C.S.
James Orr, M.B.O.U.

Retire 1934.

Captain C. D. Chase, M.C., M.A.
J. A. S. Stendall, M.R.I.A., M.B.O.U.
Wm. Sweeney.

Hon. Secretary:

JOSEPH SKILLEN, 25 Stranmillis Gardens.

PROCEEDINGS.

SUMMER SESSION.

BENEVENAGH.

Date—Saturday, 16th May, 1931. Conductors—E. N. Carrothers and A. E. Musket. Number present, 20.

This excursion, the first of the season, was well attended and favoured by beautiful weather. The party left Belfast for Bellarena by the 9-30 a.m. train, and on arrival, proceeded via the old Church of Tamlaght and holy well, up through the bushy thicket of hazel and blackthorn covering the lower slopes of Benevenagh. A halt was made at an open space affording extensive views of Lough Foyle and Inishowen. Here the party were joined by some members of the Route Naturalists' Field Club, under the conductorship of the Rev. E. M. Gumley. After a short rest, the combined party commenced the steeper part of the ascent to the base of the escarpment. Of the Alpine plants for which Benevenagh is noted, *Silene acaulis* was most conspicuous, growing on the short grassy slopes in a profusion of small cushions, densely covered with pink flowers. *Draba incana*, *Arabis hirsuta*, *Dryas octopetala*, *Saxifraga hypnoides*, and *Juniperus nana* were also seen.

Four species of Fungi new to Ireland were found and will be duly recorded. The excursion was of considerable interest to the geologists who collected specimens of various minerals from the basalt. On the return journey, tea was served on the train.

CAVE HILL.

Date—19th May, 1931 (Tuesday evening). Conductor—D. J. Carpenter. Number present, 85.

The party met at 6-30 p.m. at the Chichester Park tram terminus, on the Antrim Road, and proceeded by foot to the Cavehill Quarry.

There the conductor gave a couple of interesting talks and pointed out *in situ* the various aqueous rocks, and so demonstrated the sequence of the Cretaceous, Liassic, and Triassic rocks of the district. He also explained and showed

field evidence of the fact that the black basalt on the top of the chalk was a lava, and so that Co. Antrim was at one time the scene of intense volcanic activity. The proofs of this included the various lava flows, some of the basalts being vesicular and other amygdaloidal; the baking to a red colour of the flints accumulated on the top of the old irregular chalk country; and the metamorphism of the chalk alongside of the dykes to a marble. Some fine dykes were seen and alongside of one there was a selvedge of marble of about a foot or more.

At the top end of the quarry, where there was a very fine dyke, the dropping of the chalk on one side of it relative to the other, and the presence of a fine fault was easily seen.

After leaving the quarry, the party proceeded over the Hill to Bellevue for the return trams. *En route* some interesting plants were seen, including four typical wood plants growing amongst the heather. These were:—*Luzula sylvatica* (Wood Rush), *Anemone nemorosa* (Wood Anemone), *Viola sylvatica* (Wood Violet), and *Teucrium scorodonia* (Wood Sage).

Some members also found *Pyrola minor* on the slopes of Hazelwood.

TEMPLEPATRICK AND DONEGORE.

Date—Saturday, 30th May, 1931. Conductors—Henry French and J. Skillen. Number present, 80.

A large party assembled at the Old Museum, College Square N., and proceeded by 'bus. Mr. Henry French, who is a native of the district to be visited, made an admirable and informative guide.

The first stop was at Mallusk old graveyard, where Luke Hope, of "Rushlight" fame, is buried.

A very ancient remain, going back to the bronze age, was also visited in this neighbourhood, being a bronze age burial consisting of Dolmen and Kistvaen. Its modern name of "Granny grave" has come down through the ages as a corrupted form of Cairn-Grainne, or the "Cairn of the Sun." This would seem to show that the builders of this monument were possibly sun-worshippers.

On the way to Donegore the party stopped at Castle Upton, where, through the kindness of the owner, the old Plantation Bawn was inspected, and the grave of William Orr, the patriot of 1798, who is buried in the graveyard inside the demesne wall, was visited.

At Donegore, the magnificent view from the top of the moat was obscured by the misty weather, but the graveyard and the fine old church proved objects of great interest to the party. In the graveyard is buried Sir Samuel Ferguson, the poet and antiquary, who was born in High Street, Belfast, and was the first Ulsterman elected President of the Royal Irish Academy. The house in High Street where he was born is now marked by a tablet.

On the way to Antrim for a welcome cup of tea, Farranshane, the home of Orr, was visited, and also the cottage where the United Irishman's oath was taken.

After tea, the history of Antrim was recounted by the conductor, and the birthplace of Dr. Alexander Irvine in Pogue's Entry had a call.

Home was reached in good time after an enjoyable but somewhat moist day.

GREENCASTLE (CO. TYRONE.)

Date—13th June, 1931. Conductor—A. Albert Campbell. Number present, 50.

The journey was made by motor 'bus via Antrim, Toomebridge, Magherafelt, and Moneymore, to Cookstown. At Cookstown the party was met by Messrs. Thomas Greer, J.P., and H. L. Glasgow, who acted as guides to Greencastle, where Mr. Patrick M'Aleer, a local antiquary, took charge. It was the Club's first visit to the Tyrone Highlands. The first halt was at the Ogham Stone in the townland of Aghascrebagh ("the field or place of the writing") where Mr. Campbell gave a talk on Ogham-writing in general and this Stone in particular, repeating the local tradition regarding it. The Stone had been visited by such distinguished archæologists as Kuno Meyer, W. F. Wakeman, Sir John Rhys, and Professor Macalister. Wakeman could make nothing of the inscription, Rhys hazarded a reading, and Meyer died before his article on the subject was completed. Macalister's rendering might be taken as correct. It was a sepulchral monument to one "Dotecta."

From the Ogham Stone the party proceeded to an interesting pagan graveyard close by, and then across the valley to Dun Ruadh, a very important and remarkable chambered Carn. It is regrettable that, over twenty years ago, the burial cists, some thirteen in number, were broken open, the urns removed, and the structure more or less dismantled. It was originally in the shape of a ring, with a

passage giving access to a central open space, around which, inside the structure, were the cists.

Mr. M'Aleer directed attention to a large number of pillar-stones in the immediate vicinity, indicating the occurrence of a battle in which many persons of importance were slain.

Tea was partaken of in Cookstown Café, and the return journey was made by way of Coalisland, Portadown, and Lisburn, Belfast being reached at 10.

DUBLIN.

Date—27th June, 1931. Conductor—Dr. R. Lloyd Praeger.
Number present, 60.

A party of over sixty left by the G.N.R. to spend a day in Dublin and visit the fine exhibition held in connection with the Bi-centenary of the Royal Dublin Society.

The party was in charge of the Hon. Secretary, and were—through the kindness of the Railway Company—accommodated in reserved carriages.

On arrival at Amiens Street Station, Dr. Praeger, President of the Royal Irish Academy, was in waiting and conducted the members of the Club throughout the day.

The first visit was to the Royal Zoological Society grounds, and much interest was shown in the inmates of the gardens, from the haughty peacocks strutting about at large, to the large carnivora in the cages of the lion house, and more especially in the chimpanzee "Joe," which Dr. Praeger nursed in his arms like a baby. Lunch was enjoyed on the terrace of the Hammond Restaurant, as the day was gloriously fine. The evening was spent in the grounds of the Royal Dublin Society, and the fine exhibits there were more numerous than could be individually examined. Tea was enjoyed *al fresco* to the music of the Free State Army Band. Special 'buses conveyed the party to the various places visited, and on leaving Dublin Dr. Praeger was warmly thanked for his great assistance on what had been a most enjoyable visit.

SLIGO AND DISTRICT.

Date—11th to 15th July, 1931. Conductors—Miss W. J. Sayers, A. M'I. Cleland and A. H. Davison. Number present, 60.

Sligo, which was chosen this year for the mid-summer excursion of the Club, is famous for its natural beauty and its great historical and antiquarian interest. Over

fifty members and their friends left Belfast by the 9-40 train on Saturday morning, 11th July. Others joined on the way, and when the party had settled down in the hotels the number was about 60. Miss W. J. Sayers, B.A., was the official conductor, assisted by Mr. Henry Morris, the well-known Irish archæologist, who resides near Sligo, and Henry Griffith, a member of the Club who was holidaying there in his native district.

After tea Rosses Point was visited. Dr. Praeger acted as guide to the botanical, geological and archæological objects of interest, the last mentioned consisting of the so-called "rock shelters," about which there has been so much controversy in recent years. Later in the evening, after the return to Sligo, a small party visited the wonderful megalithic monument at the Deerpark. After supper, Dr. Praeger and Mr. Morris gave short talks on the natural and archæological features of the district.

On Sunday morning, after visiting the beautiful ruins of Sligo Abbey, most of the members attended their respective churches. In the afternoon, a few members specially interested in archæology visited, under the guidance of Mr. Morris, Creevykeel and Gortnaleck megalithic monuments, Ballintrillick neolithic sepulchre, Derryleham cashel, Mount Edward tumulus, and Drumcliffe cross and round tower, all in the country between Sligo and Bundoran. Other members, botanically and geologically inclined, went to Glencar. In the evening, after dinner, Mr. Morris again favoured the company with a most interesting and illuminating address.

Monday morning found the party proceeding by motor-boat up Lough Gill, past the holy well at Tobernalt, the Dooney Rock, immortalised by Yeats' poem, "The Fiddler of Dooney," and Church Island, which the party was prevented from visiting by a heavy and prolonged shower of drenching rain. Farther along, Innisfree Island was passed, of which Yeats sings—

"I will arise and go now, and go to Innisfree,
And a small cabin build there, of clay and wattles made;
Nine bean rows will I have there, a hive for the honey bee;
And live alone in the bee-loud glade."

Lunch was taken in the beautiful little Abbey Hotel at Dromahair, and afterwards the extensive ruins of the ancient Abbey of Creevelea were inspected. The return journey down the Lough, which has been called "the Killarney of the West," and is certainly very beautiful, was greatly enjoyed.

After dinner Mr. George C. Reilly gave a talk on the zoology of the Sligo district, illustrated by specimens which he had collected since his arrival.

The Carrowmore Monuments, described by Dr. Petrie as "remarkable, and, excepting the monuments of Carnac in Brittany, even in the present state of ruin, the largest assemblage of the kind hitherto discovered in the world," were visited on Tuesday morning in the company of Mr. Morris, who has been engaged there recently in research work. They were all constructed on the same plan, in circles of large stones, from one to four feet high, each circle having a diameter of about forty feet. The circumference was formed by about thirty or forty of these stones placed at regular intervals. Originally a dolmen formed the centre of each of the circles, which numbered at one time, according to Petrie, over two hundred, but they have now dwindled down to fourteen or fifteen.

In the afternoon some members climbed Knocknarea, 1,078 feet high, to see Maeve's Carn; others visited Knocknarea Glen, the peculiar geological formation of which provided ample material for debate later in the day. After dinner, a business meeting was held (R. S. Lepper presiding), at which several Junior Members were elected, and the thanks of the party conveyed to Dr. Praeger, Mr. Morris, Mr. and Mrs. Henry Griffith (who had most hospitably entertained the party to tea on the way back from Knocknarea), Miss Sayers, and all who had in any way helped. A. H. Davison gave a short talk on the geology of Co. Sligo, using the specimens he had collected to illustrate his remarks, and David E. Lowry, J.P., told the story of O'Rourke and his faithless wife, Dearvorgill, associated with Lough Gill. Miss Maud Cromie recited Yeats' "Innisfree," and Mr. William Griffith told a number of exceedingly humorous Irish stories.

A notable feature of the excursion was the nightly gathering of the whole party at 9 o'clock in a room of the Imperial Hotel. The big room presented quite an interesting scene: pretty girls in evening frocks and grave savants (some of them not so grave!) in serviceable tweeds gathered round the long centre table on which were displayed the specimens—zoological, botanical, and geological—collected each day, and listening to a short talk by one of their number with special knowledge of his subject. Animated discussions were the order of the night.

Most of the party returned home on Wednesday. The remainder either went on to the meeting of the Royal Society of Antiquaries at Dublin or crossed for the day to Inishmurray, an island some four miles from the coast of Sligo, and inhabited by the same families, from father to son, for upwards of seven hundred years. Its large group of ecclesiastical ruins encircled by an ancient cashel is said to offer the best and most characteristic example now in existence of the primal monastic establishments of Ireland.

The Sligo Excursion may be considered one of the most successful carried out under the auspices of the Field Club, a result very largely due to the admirable arrangements made by the conductor, Miss Sayers.

COLLIN GLEN.

Date—28th July, 1931. Conductors—Robert Bell and A. H. Davison.

There was a large attendance on this excursion, proving the success of these evening excursions.

From various vantage points en route magnificent views were obtained of the Lagan Valley and the adjoining counties, and the edge of the Basaltic escarpment. The Geological significance of the scenery and topography were explained by Mr. Davison. Mr. Robert Bell met the members at the entrance to the Glen, and took charge of the party. The condition of the Glen, after the heavy rains, made walking difficult. Mr. Bell pointed out the different geological strata, the junction of the Cretaceous and Lias, and the various zones of both these formations. The famous fish bed was obscured by a slip.

Owing to the shortness of the time and the lateness of the evening, detailed investigation could not be made.

ARMAGH CITY AND DISTRICT.

Date—8th August, 1931. Conductors—Miss M. Gaffikin, T. G. Paterson and J. Skillen. Number present, 50.

After passing Portadown the first stop was at The Giants' Graves, Ballinteggart. This is a dismantled earn of four chambers, of a type common to County Armagh. The date of the removal of its covering stones is indefinite, but local tradition states that they were used in the building of old Ballinteggart House, in which Dean Swift was sometimes a guest,

On arrival at Armagh the first call was at The Library, which was founded by Primate Robinson in 1771, and contains valuable books and manuscripts, also a fine collection of Neolithic and Bronze Age implements.

Here the members were met by the Dean of Armagh, who exhibited some of the treasures of the Library. He afterwards conducted the party round the Cathedral, and gave a history of the building and the monuments and memorial brasses contained therein.

The Reredos was particularly admired. The old thirteenth century crypt was also visited, it having survived the many destructions and burnings the Cathedral had suffered.

After lunch in the City Hall, which had been kindly lent by Mr. J. Lennon, Town Clerk, the party visited St. Patrick's Cathedral (new). This most imposing building is noted for its mosaics and exquisite marble screen. Through the kindness of the ecclesiastical authorities the sacred vessels of the altar, all executed in gold, and the vestments used in the ceremonial of the church were showed.

Armagh being the ecclesiastical capital of Ireland, it boasted at one time of five abbeys, the only one left being the Franciscan Abbey in the Palace demesne. It is much decayed, but still interesting. It was founded by Primate Scanlon in 1263 for the Order of St. Francis. Preservation work has been carried out by the Lord Primate, and further decay prevented for many years to come.

The party next proceeded to the site of the Palace of Emania, now known as the Navan Ring. This was the capital of the Kings of Ulster from 352 B.C. to 322 A.D., and was associated with many people illustrious in ancient history, such as King Conor MacNessa, Deirdre of the Sorrows, and the sons of Usnach. Here also were the headquarters of the Red Branch Knights, of whom the most famous was Cuchullain. With the party seated on the slopes of this ancient and historic mound the Hon. Secretary gave a talk on what is known of its past history and associations. Following this Colonel R. G. Berry, M.R.I.A., propounded what he called a heterodox theory of what Emania was in its site and its area, and suggested that the mound on which the party was seated was not the site of the palace, but that excavations might prove it to be of a sepulchral character like New Grange in the Boyne Valley.

On the homeward journey a halt was made to examine a glacial moraine,

GLENARM.

Date—22nd August, 1931. Conductor—J. Skillen.

The route was through Ballynure and on reaching Larne the party were joined by Messrs. Moffatt and M'Kay, local residents, who gave invaluable help throughout the day.

The first stop was at Cairncastle to visit the old graveyard, which contains some interesting memorials of the dead. Cairncastle is mentioned in the "Terrier" of Pope Nicholas IV., 13th century, the earliest and possibly the only mention of this religious settlement. In the churchyard there is a very old and magnificent Spanish chestnut tree said to have grown over the grave of a drowned sailor in whose clothing a chestnut was found. One of the oldest Presbyterian churches in County Antrim was founded at Cairncastle, the date over the doorway of the building before restoration being 1667.

Proceeding up the pass skirting the foot of Knockdhu a visit was made to three earthworks close together consisting of rampart and ditch and perfect earthen forts of a small size. Walking over the heather the Headless Cross was reached. Perhaps this was a wayide station surmounted by a cross long since disappeared. In present memory a cairn of stones situated close by was destroyed, which may have been the Headless Cross and the name transferred to the large basalt boulder now known as such. Not far from this place is a block of stone known locally as the "Priest's Grave," on which are incised crosses of curious form, and near here may have been an altar used for celebrating Mass in the penal days, if persistent tradition can be relied on.

After descending the inland slope of the hills as far as the bridge over the Linford River, the party proceeded on foot as far as the home of Mr. Patrick (More) Magill, to inspect an ancient Irish Crozier or Pastoral Staff in his possession. It is said that this ancient relic was associated with the church of Ardclinis, and possibly may be dated as early as the eighth century.

Mounting the conveyances again, Glenarm Glen soon opened up, and the party halted to inspect the site and the ancient graveyard of the old church of Tickmacrevan—house of (St.) Crevan. Here awaiting the party were Mr. J. J. Wall, J.P., estate agent to Lord Antrim, and Mr. John Clarke, the noted antiquary, of Glenarm. The latter gave a talk on the antiquities of the district, more especially on its ecclesiastical remains. Some ruins of the old church of

Tickmacrevan, which measured 45 x 15 feet, still exist. The spot is generally called the "Glore," and seems to be the "Gluaire" where the "Tripartite Life" states that St. Patrick founded a church while in the region of Latharna. Tickmacrevan is called in the Taxation "St. Patrick's Church of Glenarm."

After an *al fresco* lunch on this spot way was made down the glen, through the rectory grounds by the kind permission of Rev. T. P. Waring, and through the glen proper by permission of Lord Antrim.

Coming down nearer the castle, the site of the ancient church of Templeoughter (meaning the outer church), and called St. Mary's, was passed. On reaching Glenarm visits were paid to the site of the Old Friary in the graveyard of the present church, and the barbican tower, to inspect its collection of antiquities. On the way to Larne for a well-earned tea the road on the opposite side of the glen was taken, so that both sides were traversed. Although the Coast Road is much boasted, and rightly so, the inland way over the mountains and the moors, and the view of the glen from another angle can be highly recommended, especially on such a delightful summer day as this was.

MOUNTSTEWART.

Date—5th September, 1931. Conductors—E. N. Carrothers, A. E. Muskett, and R. J. Welch. Number presnt, 81.

On the afternoon of Saturday, 5th September, a fungus foray was held at Mountstewart. The first autumn foray of the British Mycological Society to be held in Ulster was in progress at the time, and Club members were joined by members of the visiting society. Amongst other eminent mycologists, Mr. Carleton Rea, Mr. A. A. Pearson, Miss F. M. Wakefield, Mr. J. Ramsbottom, Professor A. H. R. Buller, Dr. G. H. Pethybridge, Miss G. Lister, and Colonel Green joined in the foray. Permission to visit the demesne and gardens was kindly given by the Marquess and Marchioness of Londonderry. The combined party numbered 81 and left the Grand Central Hotel by motor coach at 1-30 p.m. An enjoyable and profitable afternoon was spent in the exploration of the woodlands and gardens, and many interesting fungi were collected. A detailed account of the collection made will shortly be published in the Transactions of the British Mycological Society. Thanks are due to Mr. Bolas, head gardener to the Marquess, who had previously surveyed the ground and was thus able

to guide the party to the most suitable places. The homeward journey was broken at Newtownards, where an excellent tea was served at the Town Hall by the management and staff of the Downshire Hotel. Belfast was reached at 6 o'clock. Club members expressed their appreciation of the joint foray and the visitors were delighted with the welcome afforded them by the Club.

BALLYCASTLE AND BONAMARGHY.

Date—12th September, 1931. Conductors—H. C. Lawlor and J. Skillen.

The weather in the morning looked very unpromising, but the day turned out one of the finest of the summer, blue skies and brilliant sunshine tempered by a mild breeze.

A stop was made at Knockahollet to visit the fine fort of this name, and from the summit of which a most wonderful view is obtained. The earthen fort is in perfect preservation, just as it left the hands of its builders, and it was the site of a Norman mote and bailey Castle.

On reaching Armoy the party was joined by the Route Field Club with their Hon. Secretary, Rev. E. M. Gumley. Armoy was once an important place in the ancient territory of Dalriada. The Annals of the Four Masters record the fact of its being set on fire by Cumee O'Flynn in 1177 during an expedition of John de Courcy. The name is a corruption of the Irish Airthar-Muighe (Athermoy—the eastern plain). The Tripartite Life relates that St. Patrick having baptised Olcan placed him over the church. Dr. Reeves dates its foundation as A.D. 474. What remains of the Round Tower was examined with interest. The arch over the doorway being cut from a solid stone points to the building being one of the earliest erections, the tower is built of mica slate rounded to give the circular form. Some preservation work requires to be done to the tower, and it would be well if the people of the neighbourhood had this matter attended to and so preserve the chief attraction of the village.

After a most delightful run down Glenshesk, the party reached Bonamarghy Abbey. Here two short talks were given, one by the Hon. Secretary on "The Order of St. Francis" and one by Mr. Lawlor on "The Building: Its History and Associations."

From these talks it was learned that Bonamarghy was founded in 1500 by Roderick MacQuillan as a house of the Franciscans of the Third Order of Tertiaries. This order of

friars was not a priestly order, such as the Cistercians for instance, but were teachers, builders, or craftsmen.

The preservation of the Abbey is being carried out at the present time by the Ministry of Finance for the Archæological Section of the N. H. & Phil. Society. This work, so far as it has proceeded, is most satisfactory and reflects credit on all concerned. When completed Bonamarghy Abbey will be an archæological asset of the highest value to the Northern Government.

A journey along the headlands brought the party to the very precipitous path leading to Kenbaan Castle. The difficult descent and the climb up the high promontory on which the castle is built deterred some from proceeding so far, but for those who accomplished the feat their toil was well rewarded by the wonderful view obtained from their aerial perch. Owing to the extreme clearness of the atmosphere Rathlin Island looked but a biscuit's toss away.

After tea at Ballycastle the road home was by the moorlands and the coast. On reaching Cushendun viaduct the lower road was taken to visit the "Altar in the Wood," which ended the sight-seeing for the day. Mounting the conveyance again way was made for home by the Coast Road and Belfast was reached at a reasonable hour, thus ending the summer Session of the Club by one of the most successful excursions of 1931.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session began, as usual, with a Conversazione held in the Assembly Hall, on Tuesday, 20th October, 1931, from 6-30 p.m. Tea was served from 7 to 8 p.m. The attendance of members and friends was large, and they viewed with great interest the many exhibits displayed.

BOTANY.—Queen's University Department of Agriculture, method of distinguishing between different species of Ryegrass, demonstration of weed-killers, general plant pathological exhibit, and fungi collected during the visit of the British Mycological Society; Miss W. J. Sayers,

specimens to illustrate division of plants into families; Captain C. D. Chase, *Compositæ* from S. Europe; Dr. Adelaide Davin and G. O. Searle, flax research; Parks Department, rare plants; Miss M. W. Rea, marine Algae.

GEOLOGY.—A. M'I. Cleland, altered basalts and other rock sections; R. Bell, upper Cretaceous and lower Lias, Brachiopoda from local deposits; A. H. Davison, some igneous and metamorphic rocks of Northern Ireland; Miss Nora Fisher, geological distribution of a common bivalve *Spicula subtruncata* in N.E. Ireland; R. J. Welch, Holocene deposit shells from dunes; D. E. Lowry, large fossil "Sea-lily" from Carboniferous limestone; J. R. Ritchie, geological model of the Mourne; Professor Charlesworth, Geological map (6") of Coalisland coalfield and map of Irish Peat bogs; C. E. Kerr, an exhibit.

ZOOLOGY.—Rev. W. R. Megaw, South African moths and caterpillars; Dr. R. H. Hunter, transparencies and microscopic preparations illustrating the eruption and development of teeth; W. M. Crawford, African and other butterflies, *Deilephila livornica* caught Belfast last June; A. H. Davison, Wasp nest; R. J. Welch, sieving and sorting land shells from dunes; Miss M. Wallace, White Ant queen (in spirit) and Python skin; D. J. Carpenter, common marine mollusca; J. Orr, interesting and beautiful bivalves; Ranald Macdonald, local land and freshwater mollusca, and *Limnaea auricularia* from Belfast Water Works.

ARCHÆOLOGY.—J. Skillen, rude stone implements, axes and artifacts; D. E. Lowry, bronze dagger.

PHOTOGRAPHY.—Miss M. Gaffikin, Air photographs; J. A. S. Stendall and Miss Nora Stendall, coloured Nature photographs.

MISCELLANEOUS.—C. R. Nodder, soap bubbles; Mrs. C. R. Nodder, specimens of earth from foundations of Belfast buildings; C. E. Purdy, marbles in commercial use.

JUNIOR DIVISION.—The exhibits, being of work done during the year, were:—Water colour flower drawings, Hazel Martin, Felicity Bolton, Sybil Bainbridge, Barbara and Priscilla Glendinning; dried grasses, Robert Olley; pressed wild flowers and leaves, Betty Hampshire, Nora Bradley, and Margaret Downer; general Natural History collection, Thomas Teuton; Geological collections, Elizabeth Shaw (fossils), Brian Gillespie (minerals); Zoological, Agatha R. Crawford (Bumble Bees), H. Brian Orr (Pond life); Shells, Patrick Shaw, Thomas Teuton, Noel Gregg, Ethna Kearney,

Harold Fricher and Brian Hunter; Seaweeds, Noel Gregg, Alistair Steven, and Katharine Maxwell; Photography, William S. Hanna (a Scottish tour, 1931), and John M'Williams; Sketches, Ethne Glendinning (with notes of Irish Antiquities).

There were also many miscellaneous exhibits.

The Business Meeting came on at 9 p.m., the President, Mr. C. E. Kerr, being in the chair. Mr. J. A. S. Stendall proposed Mr. Stephen Allan Bennett, B.A., B.Sc., for the award of the Club medal. As Mr. Bennett was unable, for reasons of health, to be present, thanks on his behalf were returned by Mr. R. S. Lepper.

The President presented the prizes in connection with the summer programme and the *Conversazione* competition as follows:—

Collection of land, fresh water, and marine shells—Noel Gregg, Sam Kernaghan, and Derek Hunter. Collection of natural history specimens—Thomas Teuton and Felicity Bolton. Collection of geological specimens—Elizabeth Shaw and Brian Gillespie. Photographs or sketches of Irish antiquities—Noel Gregg and Sam Kernaghan.

Best work during the year—Ranald Macdonald. Collection of pressed flowering plants—Betty Hampshire, Robert Olley, and Nora Bradley. Water-colour drawings of local plants—Barbara Glendinning and Priscilla Glendinning. Collection of seaweeds—Noel Gregg, Alistair Stevens and Katherine Maxwell.

Living exhibit of botanical interest—Nora Stendall and Maureen Wardlow. Exhibit of zoological interest—Michael Clarke and Felicity Bolton. Surprise natural history exhibit—Sybil Bainbridge and Sam Kernaghan. The prize for the best poem went to Mr. George Reilly.

The President congratulated the members, especially the Juniors, on the value of the exhibits, and said that a great deal of the success of the Junior Division was undoubtedly due to the enthusiastic work of Mrs. Nodder. They hoped that the enthusiasm now manifested in the Junior Division would result in even greater efficiency in the Field Club of the next generation. The Summer Session of the Club had been very successful, and they were looking forward to a useful and enjoyable winter session.

On the motion of the Hon. Secretary (Mr. Joseph Skillen), seconded by Mr. A. A. Campbell and Mrs. Nodder, 25 new members were elected for the Senior Section and nine for the Junior Division.

After the business meeting a lantern display of views taken mainly by members at summer field meetings was much enjoyed.

THE SUN AND THE NATURALIST.

The opening meeting of the Winter Session was held in the Old Museum on 17th November, 1931, at 8 p.m., when the presidential address was delivered by Mr. C. E. Kerr, B.A.

The Lecturer dealt in succession with the various solar influences on terrestrial history. Adopting the hypothesis of the solar nebula as the origin of the planetary system, the President explained the effect of primitive heat on the formation of the rocks and the great earth movements which caused the upheaval of land and subsequent formation of the detritus from this into the inorganic sedimentary rocks. From the same gravitational force came the tides which did their share in moulding land areas.

The Lecturer suggested that some extraneous gravitational force such as a passing star by altering the earth's inclination to its orbital plane might be in part the source of former glacial periods.

Dealing with the light of the sun, reflection brought to them the remembrance that not only did they owe day and night to that source, but also many facts in natural history—namely, day and night blooming plants and their attendant day or night fertilising insects. The animals that have similar preferences for day and night were many and varied.

But the most wonderful thing was the chlorophyll, which enabled inorganic matter to be changed into organic and thus make plant, and therefore animal, life possible.

From those plants and animals were formed inorganic rocks, limestone, coal, &c.; from light also arises the interesting studies of coloration, and the special one of protective coloration. From radiant heat came circulation of air and water resulting in winds and currents, and the great forces of denudation arising therefrom—rain, frost, ice, glaciers, rivers, wind denudation, including encroaching desert sands, and many other results.

From light and heat also arose the question of habitat. Some plants loved the heat and light, and some shunned one or other or both. From solar electrical emissions came terrestrial magnetism, which might hold an explanation of the migrant or homing sense of direction.

From these also came increased precipitation, and the thirty-four year sunspot cycle could be traced in tree-ring growth. Some had also propounded the theory that earthquakes had a periodicity parallel to sunspot periodicity, but the observations on that aspect needed to be more extensive. The radio-activity of the sun was also worthy of more study specially in view of the fact that radio-activity up to a point assisted growth, but beyond that point was hurtful.

The sun, said Mr. Kerr in conclusion, was the origin of many forces that covered practically all the phenomena in which the naturalist was interested.

A beautiful series of lantern slides imparted additional interest to the presidential address.

THE BRONZE-COPPER TRANSITION PERIOD.

At the second ordinary meeting of the Winter Session, held in the Old Museum on 15th December, 1931, at 8 p.m., Mr. L. S. Gogan, M.A., F.R.S.A.I., delivered a lecture to a large and appreciative audience. In the absence of the President, the chair was taken by Miss W. J. Sayers, B.A. (Past President).

Mr. Gogan said that the copper age in Ireland was far from being the single-line drawing that the archæological manuals of the day represented it to be, but had length, breadth, and thickness; in other words, a history of its own, showing a different trend to that of previous and succeeding epochs. By taking the sequence of periods recognised in the Iberian Peninsula as a guide, the general order of development of the megalithic or great stone monuments could be observed. The great tumuli areas of Ireland extended from the Boyne in a slightly north-westerly direction. The principal ones could be best explained as a compromise between the two leading types of Andalusia, and as one followed them to the west he could observe a tendency in the plans to break up. Two of the main groups had the characteristic of being decorated with designs of Southern origin, but those furthest west were devoid of any trace of the glyptic mode. Finds made in the last group and in related monuments could be paralleled to others made in South English barrows dating from the beginning

of the Bronze Age. That decline could therefore be regarded as pertaining to the transition, and it could be further followed up in tombs of the North and West. At the same time an important change in burial custom occurred, the chief mark of which was a large simple cist, and, in addition, a definite break with the earlier mode of communal interment could be noted.

The principal weapon of the age was the halberd, which could be traced back to flint weapons of the South and weapons of bronze in the Eastern Mediterranean basin. The typical ornament of the age, the gold crescent, for which an origin in Scotland was recently claimed, was derived from an early type of diadem having its origins in the Levant.

At the beginning of the transition, South European influences predominated, but at its close a complete change had taken place, which synchronised with the general decline of Atlantic civilisation. The position of affairs was to some extent akin to that existent in Ireland in Viking times, and the Fomorian legend found in mediæval Irish history might well be regarded as a shadow-record of events of 1800 B.C.

A hearty vote of thanks to the lecturer was moved by R. S. Lepper, seconded by D. E. Lowry, and passed with acclamation.

A SKETCH OF THE GEOLOGY OF NORTH-WEST TYRONE.

The third ordinary Winter Session meeting was held in the Old Museum on 19th January, 1932, at 8 p.m. The President (Mr. C. E. Kerr, B.A.) occupied the chair and the lecturer was Mr. J. J. Hartley, Lecturer in Geology at the Queen's University.

The lecturer dealt with the country lying between Omagh, Cookstown, Draperstown, and Pomeroy, which, he said, formed a little shelf projecting to the south-west of the Sperrin Mountains. Although railways ran around its edges the actual district was not so well known as many parts of North-Eastern Ireland. It was boggy and, in a way, uninteresting.

Lantern slides were shown illustrating the bogs, which seemed to cover about half the area, and Mr. Hartley explained that they were due to interference with the natural drainage of the region owing to the deposition of a series of

crescentic ridges which were deposited at the termination of the glaciers which formerly covered the area. He next dealt with the solid rocks which underlay the bog and drift deposits, and pointed out that, although there was not much to be seen at first sight, interesting geological deposits were to be found in the streams and water courses flowing down the mountain sides. The rocks were of volcanic deposit formed in a period of early English activity, which was very similar to the better known sequences found in North-Eastern Ireland, but of a very much later date and comparable in many of its characteristics to certain modern volcanic cycles now found in the Island of Fiji and over parts of the Pacific. Mr. Hartley explained how the age of those deposits was determined, pointing out that since they found pebbles of those volcanic rocks in the fossiliferous slates of Pomeroy those fossiliferous slates were known from their fossils to be of the same age as the slates of Bangor and Donaghadee. The lecturer concluded with an account of the rocks of the Sperrin Mountains.

Professor J. K. Charlesworth paid a warm tribute to the work revealed by Mr. Hartley's lecture. Other speakers were A. H. Davison, R. J. Welch, A. McI. Cleland and Captain E. L. Turner.

THE GROUPING OF PLANTS IN FAMILIES.

The fourth ordinary meeting of the Winter Session was held in the Old Museum on 2nd February, 1932, at 8 p.m., when a paper on the above subject was read by Miss W. J. Sayers, B.A. Mr. J. A. S. Stendall occupied the chair in the absence of the President.

Having pointed out that classification is necessary as a "refuge from hopeless confusion," the lecturer first referred to the grouping of plants according to their habitat, and then to the successive work of Linnaeus, Bentham and Hooker, Engler, and Hutchinson of Kew, showing how the appearing of Darwin's "Origin of Species" led botanists to abandon a system of grouping based, merely on certain external resemblances for one which took into account the racial evolution of plants from a common ancestor and their consequent relationships to one another.

The elementary knowledge necessary for the identification of plants was indicated and illustrated by lantern slides; specimens of each of the great divisions of the plant world were shown, more particularly of flowering plants, and the characteristics of the better known families pointed out, species peculiar to Ireland being specially noted.

The ambiguity and inconsistency of English flower names was referred to and the advantage of a nomenclature common to the botanists of all lands. The interdependence of the work of geologists and botanists, and even of archæologists, was emphasised and the value to the world of the thorough research of an individual in any nation.

At the close of the lecture some living specimens of various families were on exhibition.

Those speaking to the paper, or asking questions, were Mrs. C. R. Nodder, R. J. Welch and J. Skillen.

COMMON BRITISH BEETLES.

At the fifth ordinary meeting of the Winter Session, held in the Old Museum on 23rd February, 1932, Mr. George C. Reilly, M.I.M.E., gave a lecture on the above subject, illustrated with numerous lantern slides. Mr. J. A. S. Stendall occupied the chair.

Mr. Reilly described the anatomy of typical insects in detail—their adaptation to their peculiar mode of existence, tracing the life history of several species from the egg stage to perfect Beetles.

The talk being chiefly for the benefit of the younger members and beginners, technical terms were avoided as far as possible.

Setting out to answer the question, "What's the good of a Beetle," the lecturer showed that many varieties were very helpful in scavenging and devouring putrescent matter, burying small dead animals, and by preying on and keeping down the numbers of other harmful species.

Examples of each class of beetle were shown and their habits and habitats explained, distinctions being drawn between water beetles and water-loving beetles, meadow, upland and mountain kinds.

Quoting from a report of the Entomological Society of London relating to tests made on imported grain known to be infected by weevils, the surprising statement was made that out of a cargo of 74 tons of Spanish wheat, carefully sifted, ten hundredweight of weevils (*Calandra granaria*) were taken. A further test was made on Indian corn of American origin and 145 tons of it yielded 1½ tons of weevils (*Calandra oryzae*, the rice weevil), though strangely enough no rice had been near it either in growth or transport. The

effect of this infection on market prices is very serious, as apart from the .7% and 1.2% represented by the figures quoted there is the psychic effect on the buyer who is presented with weevily grain. This drawback can be counteracted to a degree by means of a water test, when the bad grain and weevils float and are skimmed off and destroyed in a furnace.

Mr. Reilly, after paying tribute to our earlier local Coleopterists, deplored the fact that so few were following this entrancing branch of nature study which he described as an easy hobby, and urged on the junior section to take it up at once, for, as he said, our district has been neglected and there are lots of new finds to make and records to be compiled, and he pointed out that everything in that line would be adding to the good reputation our club holds for fieldwork well done.

THE MEANING OF BIRD SONG.

The sixth ordinary meeting of the Session was held in the Old Museum on 15th March, 1932, at 8 p.m., when Mr. J. A. Benington, B.Sc., delivered a lecture on the above subject.

Speaking first of the territory theory, the lecturer said that, according to that theory, in spring every pair of birds chose a particular ground for nesting, left the flock, and began singing vigorously. The singing was a warning to other birds to keep at a distance from this particular territory. As a rule the birds came back to the flock in winter. With the aid of a diagram he showed how common birds had a period during the year when they did not sing, usually in late autumn.

In his experience, he went on, the birds only sang in the territory chosen by them. The influence of the weather at different seasons was discussed at some length, and it was found impossible to say that any one particular climatic factor influenced bird song. It was safer to take all the conditions together. For instance, fog alone had little effect, whereas damp, cold fog stopped most birds singing. A cold North or East wind silenced practically all the birds.

In conclusion he said he did not want them to get the idea that he considered bird song simply and solely useful. It certainly was useful, and they needed no proof that it was beautiful. It was a good thing that the Creator chose such a beautiful means for the end,

At the commencement of the meeting a vote of condolence was passed with Mr. Charles E. Kerr, the President, on the death of his mother. In his absence Mr. J. A. S. Stendall occupied the chair.

Discussion followed the lecture in which Senator T. J. Campbell, K.C., R. E. L. Clarke, A. McI. Cleland and J. Skillen also spoke. A vote of thanks to the lecturer was proposed by W. M. Crawford, seconded by Miss W. J. Sayers, B.A., and passed with acclamation.

THE LIFE OF PALÆOLITHIC MAN.

The seventh and concluding meeting of the Winter Session was held in the Old Museum on 5th April, 1932, at 8 p.m. The lecturer was Dr. J. Wilfrid Jackson, F.G.S., of Manchester Museum.

Dr. Jackson, who recently returned from a three months' visit to Egypt where he has been assisting members of the Egypt Exploration Society in the investigation of pre-dynastic and other cemeteries in the neighbourhood of Luxor and Armant, showed by means of a geological chart the approximate position of the incoming of the first primitive beings. According to present evidence, he said, the first traces of man in the shape of implements occurred at a time known to geologists as the Pliocene.

"Most definite evidence of his presence," continued Dr. Jackson, "is met with during the succeeding Pleistocene period, which embraces the great Ice Age. The perfection of his implements in the latter period seems to indicate a long course of evolution, and the same may be said regarding the stage of development reached by the various fossil skulls, which appear to be highly specialised and far removed from the common ancestor."

A close study of the ancient fauna, he continued, showed that at certain stages of the Ice Age the British Isles were closely connected with the mainland of Europe, Ireland was joined to England, and certain land-bridges connected Europe with Africa. By means of these land-bridges it was possible for migrations of animals and of early man to take place.

From discoveries made in different parts of the world it had been established that there were several distinct types of men living during the long Pleistocene period.

The remains of some of those types were still very scanty, but with regard to Neanderthal man of the middle Pleistocene there was now a considerable mass of information. He was the earliest type of man of which nearly complete skeletons had been found. This type of man and others of early date ultimately became extinct, and all the human remains of later date were so closely similar to those of modern man that they were included under the living species *homo sapiens*. Several varieties were known, and like Neanderthal man they lived to a great extent in caves.

The advent of *homo sapiens* constituted the most momentous event in man's history. It marked the beginning of an entirely new phase to which Dr. Elliot Smith had given the name Neoanthropic. This phase included all the subsequent epochs of man's history. Instead of the greatest cultural break being between the Palæolithic and Neolithic periods, as had been so often suggested, it occurred between the Lower and Upper Palæolithic.

In the course of his lecture Dr. Jackson dealt with the evidence bearing upon the life of Palæolithic man which had been obtained from many famous caves.

He made mention of the finding of worked objects showing Magdalenian technique in Yorkshire caves, and said that last year confirmatory evidence was encountered in the form of a worked rod of reindeer antler found in a cave on Giggleswick Scars, near Settle. In association with the latter were some scanty and imperfect human remains, and bones of the cave bear, lynx, reindeer, and other animals.

This new information was of very great significance as showing that the ice of the last glaciation of Britain had retreated or melted away and left the caves free for habitation. Palæolithic man seemed to have followed the retreating reindeer north as the glaciers melted.

In the absence of the President, J. A. S. Stendall, M.R.I.A., occupied the chair. A vote of thanks to Dr. Jackson was moved by A. M. I. Cleland, seconded by R. J. Welch, and carried with acclamation.

ANNUAL MEETING.

The Annual Meeting was held in the Museum, College Square North, on Tuesday, 19th April, 1932, at 8 p.m., the President being in the chair.

The following Reports were presented:—

ANNUAL REPORT.

The committee have pleasure in submitting the sixty-ninth Annual Report of the club, the membership of which now stands as follows: 6 Honorary members, 5 Corresponding members, 2 Life members, 488 Ordinary and 188 Juniors, making a total membership of 676.

During the year 45 members were elected, 6 died, 37 resigned, and 18 were struck off the roll for non-payment of subscription in accordance with Rule III.

It is with great pleasure we note that during the year the Tyrone Field Club came into existence, which now makes four clubs affiliated with us, and during the past winter our members, in the way of lectures, have given assistance to all of them. The secretaries of these affiliated clubs have repeatedly, through your Hon. Secretary, returned their warmest thanks for the assistance so rendered.

The office-bearers of the club number 25 and 10 meetings of the committee were held during the year, the list of attendances being as follows:—

Miss Gaffikin	... 10	Wm. Sweeney	... 8
A. H. Davison	... 10	R. S. Lepper	... 7
Joseph Skillen	... 10	R. J. Welch	... 7
J. A. S. Stendall	... 10	Charles E. Kerr	... 6
Miss Nora Fisher	... 9	Prof. Charlesworth	... 6
Mrs. Nodder	... 9	Rev. W. R. Megaw	... 6
Robert Bell	... 9	Dr. J. S. Loughridge	5
A. M'L. Cleland	... 9	Capt. Chase	... 4
W. M. Crawford	... 9	D. J. Carpenter	... 4
C. R. Nodder	... 9	Prof. Gregg Wilson	... 4
Miss Sayers	... 8	E. N. Carrothers	... 2
A. A. Campbell	... 8	J. R. H. Greeves	... 2
James Orr	... 8		

We deeply regret to report the death of several members whose names are appended to this report, two of which we might specially mention owing to their long membership, viz.: Mrs. Marsh of Glenlyon, Holywood, who was a member for 51 years, having joined the club in 1880, and Mr. R. A. Kyle, a member for 54 years, joining in 1877.

The Committee desire to return their best thanks to the donors of the prizes to the Junior Division for work done during the summer and for exhibits at the *Conversazione*, who were as follows:—

The President (Charles E. Kerr), Capt. Chase and A. H. Davison, two prizes each, and A. Albert Campbell, A. M'I. Cleland, W. M. Crawford, R. S. Lepper, C. R. Nodder, R. J. Welch and Professor Gregg Wilson, one prize each.

Our representative to the British Association, which met in London, 1931, was W. M. Crawford, F.E.S., F.Z.S.

Your Committee have decided to publish as an appendix to the Proceedings "The Lepidoptera of Co. Down," by the Rev. Canon George Foster.

The programme of the Summer Session was fully carried out, the following being a list of the excursions:—

1932.

16th May—Benevenagh (Whole Day).

19th May—Cavehill (Evening).

30th May—Templepatrick and Donegore (Half Day).

13th June—Greencastle (Co. Tyrone) (Whole Day).

27th June—Dublin (Whole Day).

11th till 15th July—Sligo (Long Excursion).

28th July—Collin Glen (Evening).

8th August—Armagh (Whole Day).

22nd August—Glenarm Glen, via Cairncastle (Whole Day).

5th September—Fungus Foray (Mountstewart).

12th September—Ballycastle and Bonamarghy (Whole Day).

The accommodation on all these excursions was fully occupied and notwithstanding the wet summer fine weather was enjoyed on every occasion.

The Fungus Foray on 5th September to Mountstewart was held in conjunction with the British Mycological Society, who were holding their Annual Congress in Belfast for the first time.

The Winter Session was inaugurated as usual by a *Conversazione* held in the Assembly Buildings on the 20th October, 1931. This function was as successful in point of attendance and extent of exhibits as any held in the past.

The prizes won by the Junior Division were handed over by the President, and the Club medal, which had been awarded to S. A. Bennett, B.A., B.Sc., was received by R. S. Lepper on his behalf, Mr. Bennett's health preventing him being present to receive it in person.

The Lectures delivered during the winter half of the Session were as follows:—

1931.

Nov. 17 Presidential Address: The Sun and the Naturalist.

Dec. 15 The Copper-Bronze Transition Period. L. S. Gogan, M.A., F.R.S.A.I.

1932.

Jan. 19 A Sketch of the Geology of N.E. Tyrone. J. J. Hartley, M.Sc.

Feb. 9 The Grouping of Plants in Families. Miss W. J. Sayers, B.A.

„ 23 Common British Beetles. Geo. C. Reilly, M.I.M.E.

March 15 The Meaning of Bird Song. J. A. Benington, B.Sc.

April 5 The Life of Palæolithic Man. J. Wilfrid Jackson, D.Sc., F.G.S.

All the lectures were well attended and interesting discussions followed their delivery.

Finally, the Committee desire to record their thanks to the several Railway Companies and H. M. S. Catherwood, Ltd., for facilities afforded on the different excursions, to the Press for publishing reports of the Club meetings, and to the public bodies who have favoured the Club with their publications during the past year, and lastly our thanks are warmly given to the following for courtesies extended to us during the summer excursions:—Very Rev. Dean Tichborne, Mr. T. G. Paterson and Mr. J. Lennon (Town Clerk), Armagh; Mr. John Clarke, Glenarm; Mr. P. M'Aleer, Green-castle; Rev. P. Shirley, Downpatrick; Mr. O'Doherty, Magiligan; Mr. Wm. Smith, Castle Upton; Mr. Henry Morris and Mr. Wm. Griffith, Sligo; and Mr. H. M'Cance, Dunmurry.

JOSEPH SKILLEN, Hon. Secretary.

April, 1932.

OBITUARY.

Mrs. Marsh.

R. A. Kyle.

E. J. Charley, J.P.

D. S. Kerr.

Miss M. Morton.

W. T. Polley.

HON. LIBRARIAN'S REPORT.

Since last report, vol. IX, parts 1 and 2, were issued to all members and Exchanging Societies. Proceedings from these Societies are being received as usual and still more blanks have been filled up. Also further considerable progress has been made in binding sets, especially those which are complete or fairly complete.

The Exchange list will be found on page 175. It shows three renewals of former exchanges and nine new additions. The three renewals are the Glasgow and Andersonian N.H. and Microscopical Society, the Plymouth Institution and the Academy of Sciences of St. Louis. The new ones are the Caradoc and Severn Valley Field Club, Carlisle N.H. Society, Down and Connor Historical Society, Eton College N.H. Society, La Société Guernésiaise, Isle of Man N.H. and Antiquarian Society, Llandudno, Colwyn Bay and District F.C., London N.H. Society and Manchester Literary and Philosophical Society. All of these are interesting and some are particularly valuable.

In all this work I have received willing and unstinted assistance from Miss Nora Fisher.

W. M. CRAWFORD, *Hon. Librarian.*

REPORTS OF THE RECORDING SECRETARIES.

ZOOLOGY.

The most noteworthy bird record of the past year is that of the re-appearance of the Golden Eagle in Co. Antrim, after an absence of 80 years. One Eagle was seen at intervals from December, 1926, to spring of 1930. In March, 1929, it was accompanied by another Eagle. In 1930 a flight feather was found, which was identified by Mr. H. F. Witherby. See C. J. Milligan, in I.N.J., v. 3, pp. 254-255 (1931).

W. M. Crawford has recorded a Beetle new to Ulster, *Ptinus tectus* Boiel., from a Belfast grain-store. It is a Tasmanian species, which appears to be spreading rapidly. See I.N.J., v. 4, p. 40 (1932).

The Irish form of the Meadow Brown Butterfly (*Epinephele ianira* L.) has recently been separated to form a distinct sub-species, *iernes* Graves, and has been recognised in specimens from Donegal, Derry, Tyrone and Antrim. See I.N.J., v. 3, p. 55 (1930).

The *Convolvulus* Hawk-moth was frequent in our district in the autumn of 1930.

W. M. Crawford has also recorded a specimen of the Striped Hawk-Moth (*Deilephila livornica* Esp.) from Belfast, June, 1931. It is only the 2nd Belfast record, and the 3rd for Northern Ireland. See I.N.J., v. 3, p. 217 (1931).

Rev. E. M. Gumley has recorded (I.N.J., v. 3, p. 232) the larva of the Frosted Orange Moth (*Ochria ochracea* Hb.) in a potato stem from Ballintoy, Co. Antrim. The Dept. of Agriculture, Q.U.B., identified the larva. New to Co. Antrim, and only one previous Northern Ireland record.

Rev. Canon Foster has added three moths to the lepidopterous fauna of Co. Down: the Flounced Chestnut (*Amathes helvola* L.) from sandhills between Dundrum and Newcastle, the Small White Wave (*Asthena candidata* Schiff.) at Rostrevor, and the Clouded Silver (*Bapta temerata* Hb.) from Saintfield, and also from Rostrevor. See I.N.J., v. 3, pp. 40-41 (1930).

In marine mollusca a great deal of work has been done in verifying old records, and one species has been added to the known fauna—*Ondina obliqua* Alder, a rare species, new to Northern Ireland. Three specimens were found in shellsand from the Giant's Causeway, collected by R. J. Welch in 1929.

Miss W. M. A. Brooke recently brought me a living specimen of the Orange-Disked Anemone (*Sagartia miniata* Gosse) from Dunfanaghy, Co. Donegal. New to Ulster.

The same lady also brought me some worn *Aporrhais* and *Dentalium* shells from Red Bay, Co. Antrim, which had been inhabited by *Phascolion strombi* Mont., a Gephyrean new to Northern Ireland. This species of Spoonworm lives in empty shells, protecting itself by blocking the mouth of the shell with sandy cement, leaving only a small round orifice open.

BOTANY.

The Water-soldier (*Stratiotes Aloides* L.), supposed to be extinct in Northern Ireland, found in abundance in Woodburn Mill dam, near Carrickfergus, Co. Antrim, by Nora Fisher and Ida Hill. See I.N.J., v. 3, p. 129 (1930).

Lepidium perfoliatum L. An alien, new to Co. Down. 2 plants from Anahilt. See I.N.J., v. 3, p. 252 (1931).

The following plants have been added to the known flora of Co. Tyrone by Thomas Greer (I.N.J., v. 3, pp. 129 and 232):—*Corydalis lutea* DC., *Epilobium angustifolium* L., *Cichorium Intybus* L., *Lobelia Dortmanna* L., *Salix repens* L., *Iris foetidissima* L., *Cladium Mariscus* Br., *Equisetum variegatum* Sch., *Ophrys apifera* Huds.

A fungus new to Northern Ireland, *Pleurotus spongiosus* Fr., was found by Mr. Welch in a garden at Belfast. See I.N.J., v. 3, p. 258 (1931).

NORA FISHER.

ANTIQUITIES—LISTS AND SURVEYS.

The Ancient Monuments Branch of the Finance Ministry, and its Advisory Committee, continue the difficult and tedious task of examining, selecting and listing for protection ancient monuments in the Six Counties.

Protection Orders have now been issued to the owners of many listed for protection in Cos. Antrim and Down, Armagh and Fermanagh. Preliminary work has been done on the difficult Cos. Derry and Tyrone.

In our own Club, the recently established Antiquities Survey Committee, under the experienced guidance of A. A. Campbell and Miss Gaffikin, gives promise of much useful work.

EXCAVATIONS AND REPAIRS—CO. ANTRIM. CARRICKFERGUS CASTLE.

The Ancient Monuments Works Branch of the Ministry of Finance has followed its notable excavation and repair of Dunluce Castle by equally good and cautious work on Carrickfergus Castle, where several interesting early features have been reopened with admirable effect by Mr. T. F. O. Rippingham, A.R.I.B.A.

BONAMARGHY FRIARY, NEAR BALLYCASTLE.

Good work has also been done by the Works Branch in the excavation and repair of the ruins of the Franciscan Friary (Third Order) at Bonamarghy, Ballycastle. The floors of the church and adjoining buildings have been freed from the accumulations of recent centuries, and lowered to their original level, with due regard to the preservation of human remains and tombstones; and much needed repairs to the structure have been made.

FINDS—THE BANN RIVER DREDGINGS, NEAR TOOME, CO. ANTRIM.

On the suggestion of the President of the Belfast Natural History and Philosophical Society, and with the support of the Ancient Monuments Advisory Committee and the Ministry of Finance, our Hon. Secretary (Joseph Skillen), W. Gracey and Dr. J. B. Stewart have been allowed to visit from time to time the Bann River dredging operations, and help to identify and save for the Ministry antiquarian objects found in the soil brought up from the river bed.

Though the terms of the dredging contract did not admit of a thorough search being made, certain valuable objects have been rescued in this way.

The finds, consisting chiefly of stone and bronze implements, are on exhibition in the Belfast Municipal Museum.

R. S. LEPPER.

REPORT OF BOTANICAL SECTION.

Thirty-two members paid subscriptions to the Section during the year.

Four excursions were arranged, but two (June 6th and June 9th) were abandoned on account of the weather.

KNOCKDHU AND SCAWT HILL. June 20th. A party of twenty-five members and friends travelled by motor-coach to the foot of Knockdhu. *Dryas octopetala* was found in flower in its well known station and *Arenaria verna* and the Mossy Saxifrage were also found in flower nearby. From Knockdhu the party walked across the valley to the foot of Scawt Hill, joining a party of the Geological Section. After tea at Ballygally a short visit was made to the garden of Ballygally Castle. Here among the interesting plants in flower the showy *Crinodendron* was seen.

LOCH NAROON. September 19th. A whole day excursion, jointly with the Zoological Section, was arranged for this date and eighteen members travelled by motor-coach to within a mile of the Loch. On the roadside near Glarryford Mr. Megaw pointed out *Spiræa salicifolia*. The party scattered after lunch and thoroughly explored the moor in the vicinity of the Loch. Among the plants seen may be mentioned Cranberry (in fruit), Cowberry (in flower and fruit), *Epilobium palustre*, *Utricularia minor* and *Drosera anglica*.

C. R. NODDER.

W. R. MEGAW.

REPORT OF GEOLOGICAL SECTION.

Four visits were made during the Session, the first on the evening of Tuesday, 19th May, 1931, to Cave Hill Quarries, and the second on the evening of Tuesday, 28th July, 1931, to Colin Glen. At the latter, as the river was low, excellent opportunity was afforded to examine the very interesting beds exposed in this well known section. The time allowed was too short to permit of any work being

done. Indeed Colin Glen is too big a subject for an evening visit. It requires a whole afternoon at least.

On Saturday, 20th June, 1931, a combined excursion of the Botanical and Geological Sections was made to Scawt Hill and neighbourhood. At Scawt Hill, under the guidance of Mr. R. Bell, a minute examination was made of the geological features of this interesting exposure. The chalk at Scawt Hill has been changed into a grey crystalline marble which takes a high polish. If it could only be obtained in large pieces it would make a valuable building material.

On Saturday afternoon, 20th February, 1932, the Section visited the Geological Department, Queen's University. Professor Charlesworth (on whose kind invitation the visit was made) met the party at 2.30 and for an hour and a half devoted himself to their instruction and information. This visit was very greatly appreciated by the members present.

R. BELL,
A. M'I. CLELAND, } *Hon. Secretaries.*

REPORT OF ZOOLOGICAL SECTION.

Though many zoologists may have done individual work in their pet subjects, I am sorry to report that their collective work as a section has been disappointing.

Five members subscribed to the section, but in an attempt to arouse interest last year's subscribers were also notified of the section excursions, but with no result.

Four excursions were arranged, and to the first to Moira on the 23rd May the Juniors were invited. Three Seniors attended and 24 Juniors. For his help on that occasion I wish to thank Mr. G. Reilly, for with the aid of his nets we obtained 7 genera and 14 species of fresh water mollusca out of the Lagan. In addition the larvæ of the dragon fly, the caddis fly, water beetles, etc., were captured.

The second excursion to Conlig, arranged for the 6th June, in conjunction with the Botanists, failed owing to the exceptionally wet weather; while the third to Ballymacormick Pt. on the 25th July fell through as Mr. Welch, who was to arrange and conduct the excursion, was too busy to attend to it.

The final one to Lough Naroon on 19th September was a whole day trip, undertaken jointly with the Botanical Section. Only two Zoologists attended, but nevertheless

we hoped, in this new area, to find something new and interesting. We were, however, disappointed as the Lough and the adjacent land yielded very little.

From my brief experience as Joint Secretary of this Section it would seem, owing to the paucity of Zoologists in the Club and the inevitable clashing of their interests in such a wide subject, that Section work in Zoology has little value.

D. J. CARPENTER.

REPORT OF ARCHÆOLOGICAL SECTION.

Four excursions were held during the year. The first, to Carrickfergus Castle, was on 4th July. Over 30 members were present. Since the Northern Ireland Government took over the building under the Ancient Monuments Act much has been done to disclose features that had been obscured during its occupancy as a military barrack, and the work was still in progress at the time of the excursion.

The next excursion was to Dundonald on August 29th. The historical associations of the dun and the Cleland monument were explained by Mr. John J. Marshall, and at the Kenpe Stone Col. Berry gave an exposition of various theories regarding ancient megalithic monuments. Other objects of interest inspected were the old treasure-chest in the Presbyterian Church, and a fine ring-fort and two menhirs in the townland of Greengraves. About 40 members attended.

The third excursion, on 19th September, was to Downpatrick and district. The first halt was at Inch Abbey, a twelfth century Cistercian foundation. One of the Honorary Secretaries of the Section outlined the history of the building, and Mr. Skillen gave an interesting account of the Cistercian Order. At Downpatrick the Rev. P. Shirley conducted the party round the Cathedral. At the reputed grave of St. Patrick one of the Honorary Secretaries dealt briefly with the conflicting traditions regarding the Saint's last resting place. On leaving the Cathedral, the old town cross, re-erected by our Club in 1897, was pointed out. The Mound, a large earthen fort of the mote-and-bailey type, erected by John de Courcy about 1177; Ballynoe Stone Circle, one of the largest of its kind in Ireland, and the Struell Wells were also visited. About 50 members were present.

The last excursion of the season was to the Belfast Municipal Museum on March 12th. Mr. Stendall, Mr.

George, and Mr. Hewitt, of the Museum staff, took charge of the party of 40, and helped to make the visit pleasant and profitable. Afterwards, there was an adjournment for tea to the Carlton, and an enjoyable social hour was spent.

The Section increased its membership by 20 during the year.

A. A. CAMPBELL, }
M. GAFFIKIN, } *Hon. Secretaries.*

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

During the past year 646 Antiquities have been classified and indexed, and those not already indicated marked on the 1" O.S. Maps. 17 unrecorded Antiquities have been reported.

A system of voluntary field workers has been organised throughout the Six Counties and there are now 27 names on the list.

104 photographs, 90 reports and descriptive notes, 4 plans, and 1 drawing have been received.

The gratitude of the Committee is due to Dr. Chart and the officials of the Public Record Office, and to Mr. Deane and the officials of the Belfast Museum and Art Gallery, for their invaluable assistance during the past year, also to all those who have encouraged and forwarded the work of the Survey of Antiquities.

M. GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

The Junior Division Committee, consisting of Capt. Chase (Chairman), Nora Stendall, Jean Cole, Mr. E. N. Carrothers, Ranald Macdonald, Jack Blair and William Smith, met three times in the year. Only routine business was conducted. The number of junior members in April, 1931, was 143.

There have been nine resignations, three transfers to the senior list, seventy-eight new members elected, and the total number now on the list is 188. One hundred and seven members have paid subscriptions for the year now ending and nine arrears from last year, making the total receipts £7 0s 6d. Twenty-one names have been removed from the list for non-payment of subscriptions.

There was one indoor meeting specially for junior members on October 5, when the President gave a black-board talk on Irish place-names. Twenty-five attended.

Junior members have received notices of Club lectures that should be of interest to them. These were the Presidential Address, Miss Sayers' lecture on botany, Mr. Reilly's on beetle collecting and Mr. Benington's on bird song.

The excursions during the season were extraordinarily well attended, there being only once less than twenty-four and twice over sixty present. A few of the excursions were rather far removed from field work, but the surprising amount of interesting information to be gained from visits to factories is urged as a sufficiently good reason for introducing junior naturalists to the scenes behind various manufactures.

The exhibits at the *Conversazione* were numerous and varied. One or two shell and seaweed collections were of outstanding value, containing several new records. Thanks are due to Miss Nora Fisher and to Miss Rea and to the authorities at Kew for naming many of the specimens.

A feature of this *Conversazione* was the exhibiting of small and not very meritorious collections by members of twelve years of age and under. These should surely receive every encouragement because their work, especially when it is unaided by parents or teachers, is a definite promise of more valuable results in the future.

The following excursions were held during the year:—

1931.

- April 2—Geological excursion to Carr's Glen. Conductors, Mr. R. Bell and Mr. A. M'I. Cleland.
- May 19—General Club excursion, evening, Cave Hill. Conductor, Mr. D. J. Carpenter.
- May 23—Zoological excursion to Lagan at Moira. Conductor, Mr. D. J. Carpenter.
- May 30—Agricultural show at Balmoral—talks in the Ministry of Agriculture's exhibit arranged by Mr. Rhinehart.
- June 6—Visit to bacteriological laboratory and dairy of Belfast Co-operative Society. Conducted by Miss Mayes, M.Sc.
- June 13—Carnalea, seaweed collecting. Conductor, Miss Rea, M.Sc.

- June 18—Evening marine zoology excursion to Orlock Point. Conducted by junior members, Ranald Macdonald and John M'Williams.
- June 23—Evening visit to Belfast Co-operative Bakery, by courtesy of the Manager.
- July 4—Botany walk from Belmont to Dundonald. Conducted by Capt. Chase, who afterwards entertained junior members to tea.
- September 5—The inside working of the herring fishery, including inspection of the trawlers. Conducted by Mr. G. Steven, who provided tea and fresh fish to bring home.
- September 12—Archæological visit to Carrickfergus Castle and a walk to collect wild flowers of the Order Compositæ to show on flower tables the following week at the Municipal Museum.
- September 16—Rare plants in the Botanical Gardens, shown by Mr. A. Graham, followed by a talk on the Natural Order Compositæ, delivered in the Municipal Museum by Mr. A. E. Muskett.
- September 26—Sea shell beds under Belfast buildings and Alexandra Graving Dock, etc., Queen's Island.
- October 10—Junior members' fungus foray in Belvoir Park. Conducted by Mr. A. E. Muskett.
- October 17—Zoological and botanical excursion near Shaw's Bridge to collect living specimens for the *Conversazione*. Conductors, Miss Rea, M.Sc., and Mr. R. J. Welch, M.Sc.
- November 25—Glenbank bleach works of Messrs. Wm. Ewart & Sons. Processes explained by Dr. Ellison.

1932.

- February 16—Belfast Municipal Gas Works, by courtesy of the Manager.

WINIFRED NODDER, *Hon. Sec. Junior Division*.

Hon. Treasurer's Account for the Year ending 31st March, 1932.

Cr.

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Balance from year 1930-31	...	£30	4	7	Printing and Stationery	...	£38	11	5
Subscriptions received, including Arrears:—	...				Postage	...	26	11	5
484 at 6/-	...	145	4	0	Cost of Proceedings	...	56	16	10
1 at 5/-	...	0	5	0	Expenses of Conversazione	...	7	5	7
Subscriptions paid in advance for year 1932-33:—	...				Hire of Museum Rooms	...	13	17	6
17 at 6/-	...	5	2	0	Hire of Lantern	...	7	0	0
42 Entrance Fees at 5/-	...	10	10	0	Expenses of Junior Division	...	16	10	3
Subscriptions received from Juniors	...	7	0	6	Sub. to <i>English Naturalist</i>	...	0	15	0
Balance of Junior Badges	...	3	1	9	Affiliation Fee, <i>Irish Naturalists' Journal</i>	...	3	0	0
Sale from Excursions	...	22	17	11	Addressing Circulars and Clerical Assistance	...	14	3	6
Sale of Floras	...	0	5	0	Survey Committee	...	16	12	10
Geologists' Assoc. Proceedings	...	0	15	6	Inscribing Prizes	...	2	17	0
Sale of Two Appendices	...	0	1	0	Sub. to B.M.S. Entertainment Fund	...	2	2	0
					Vol. X <i>Essex Naturalist</i>	...	0	16	6
					Xmas. Gratuity	...	0	10	0
					Proportion Addressograph	...	6	9	4
					Incidental Expenses:—Binding two Vols.,	...			
					Travelling Expenses, Cheque Book, Engraving	...			
					Medals, U.S.P.C.A. Leaflets, Commission	...			
					Cheque	...	3	19	10
					Balance carried forward to next Account	...	7	8	3
							£225	7	3

In addition there remain Junior Badges to the value of £3 8s 3d.
Audited and found correct. Balance in hands of Honorary Treasurer, £7 8s 3d.

18th April, 1932.

C. NODDER.
JAMES ORR.

The following office-bearers were elected for the Session 1931-32:—President, Professor J. K. Charlesworth; Vice-President, Professor Gregg Wilson; Hon. Secretary, J. Skillen; Hon. Treasurer, A. H. Davison; Hon. Librarian, W. M. Crawford; Hon. Recording Secretaries, Miss Nora Fisher and R. S. Lepper; Hon. Secretaries of Sections—Botanical, C. R. Nodder and Rev. W. R. Megaw; Geological, A. M'I. Cleland and J. J. Hartley; Zoological, D. J. Carpenter and R. J. Welch; Archæological, Miss Mary Gaffikin and A. A. Campbell; Hon. Secretary Junior Division, Mrs. Winifred Nodder; Ordinary Members of Committee (retire 1933), Miss W. J. Sayers, Dr. J. S. Loughridge and James Orr; (retire 1934), Captain C. D. Chase, J. A. S. Stendall and Wm. Sweeney; (retire 1935), Robert Bell, W. G. Burns and C. E. Kerr.

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }
- 1931. S. A. Bennett, B.A., B.Sc.

Mr. Bennett joined the Club in 1908, was on the committee from 1913 till 1926, was for three periods hon. secretary of the Botanical Section, and from 1919 till 1923 was Joint Editor of Proceedings. In 1920 he was elected President, and held office for two years, and when in 1926 he had to sever active connection owing to ill-health the Club lost one who had contributed largely to its welfare.

Mr. Bennett's interests were mainly botanical, and he was instrumental in adding largely to the knowledge of the distribution of phanerogamic plants in Northern Ireland. Local geological and anthropological problems occupied a good deal of his leisure time in later years, and in 1923 he collaborated with Mr. Robert Bell in an important paper on a recently discovered prehistoric site in County Antrim. Mr. Bennett, who now lives at Burslem, was an inspiring companion, and many members of the Club owed much of their knowledge in field botany and geology to his teachings.

LIST OF EXCHANGING SOCIETIES.

1930-31. 1931-32.

- | | | |
|---|---|--|
| 1 | — | Barrow-in-Furness—Naturalists' Field Club and Literary and Scientific Association. |
| 1 | 1 | Belfast—Committee of the Public Museums and Art Gallery. |
| 1 | 1 | Committee of Public Libraries. |
| 1 | 1 | Natural History and Philosophical Society. |
| 1 | 1 | Presbyterian Historical Society of Ireland. |
| 1 | 1 | Birmingham—Natural History and Philosophical Society. |
| 1 | 1 | Bournemouth—Natural Science Society. |
| — | 1 | Brighton and Hove—Natural History and Philosophical Society. |
| — | 1 | Bristol—Naturalists' Society. |
| — | 1 | Caradoc and Severn Valley—Field Club. |
| 1 | 1 | Cardiff—Naturalists' Society. |
| — | 1 | Carlisle—Natural History Society. |
| 1 | — | Chester—Society of Natural Science, Literature and Art. |
| — | 1 | Down and Connor—Historical Society. |
| 1 | 1 | Dublin—Royal Irish Academy. |
| 1 | 1 | Royal Society of Antiquaries, Ireland. |
| — | 1 | Royal Zoological Society of Ireland. |
| 1 | — | Dumfriesshire and Galloway—Natural History and Antiquarian Society. |
| — | 1 | Dundalk—County Louth Archæological Journal. |
| — | 1 | Eastbourne—Natural History, Photographic and Literary Society. |
| — | — | Edinburgh—Geological Society. |
| 1 | 1 | Essex—Field Club. |
| — | 1 | Eton College—Natural History Society. |
| 1 | 1 | Frankfort—Senckenbergische Bibliothek, |

1930-31. 1931-32.

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|---|---|--|
| 1 | 1 | Glasgow—Royal Philosophical Society. |
| — | 1 | Glasgow and Andersonian Natural History and Microscopical Society. |
| — | 1 | Guernsey—La Société Guernésiaise. |
| — | — | Halifax, Nova Scotia—Institute of Science. |
| — | — | Hertfordshire—Natural History Society and Field Club. |
| — | — | Isle of Man—Natural History and Antiquarian Society. |
| 1 | 1 | Isle of Wight—Natural History Society. |
| 1 | 1 | Leeds—Philosophical and Literary Society. |
| — | — | Leyden—Rijks Ethnographisch Museum. |
| 1 | 1 | Liverpool—Geological Society. |
| 1 | — | Naturalists' Field Club. |
| — | 1 | Llandudno, Colwyn Bay and District—Field Club. |
| — | — | London—British Association. |
| — | — | British Museum. |
| 1 | 1 | Geologists' Association. |
| 1 | 1 | Linnean Society. |
| — | 1 | Natural History Society. |
| 1 | — | Manchester—Geological Association. |
| — | — | Literary and Philosophical Society. |
| — | 1 | Microscopical Society. |
| 1 | 1 | Marlborough College—Natural History Society. |
| 1 | 1 | Newcastle-upon-Tyne—Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne. |
| — | 1 | Norfolk and Norwich—Naturalists' Society. |
| 1 | 1 | North Staffordshire—Field Club. |
| — | 1 | Oxford—Ashmolean Natural History Society. |
| — | — | Perthshire—Society of Natural Science. |
| — | — | Plymouth—Institution. |
| — | 1 | Stavanger—Staats Museum. |
| 1 | — | Swansea—Scientific and Field Naturalists' Society. |

1930-31. 1931-32.

- 1 Toronto—Royal Canadian Institute.
 1 1 Torquay—Natural History Society.

U.S.A.

- 1 — Boston, Mass.—Society of Natural History.
 — — Chicago—Academy of Sciences.
 1 1 Field Museum of Natural History.
 1 — John Crerar Library.
 — — Cincinnati—Lloyd Library.
 1 1 Madison, Wis.—Wisconsin Academy of
 Sciences, Arts and Letters.
 1 1 Milwaukee, Wis.—Public Museum.
 1 — New York, N.Y.—Academy of Science.
 1 1 Philadelphia—Academy of Natural Sciences.
 1 — Rochester, N.Y.—Academy of Science.
 — — St. Louis, Mo.—Academy of Sciences.
 1 1 Missouri Botanical Garden.
 1 1 San Diego, Cal.—Society of Natural History.
 1 1 San Francisco, Cal.—California Academy of
 Sciences.
 1 1 Staten Island, N.Y.—Institute of Arts and
 Sciences.
 — — Tuft's College, Mass.—Eaton Memorial
 Library.
 1 1 Washington—U.S. Geological Survey.
 1 1 Government Printing Works.
 1 1 National Museum.
 1 1 Smithsonian Institution.

LIST OF MEMBERS ELECTED DURING YEAR 1930.

- Miss Winifred F. E. Anderson, 47 Brookhill Avenue, Antrim Road.
 Mrs. N. Anderson, Ballyhossett, Downpatrick.
 Major R. H. H. Armstrong, Harbour Office, Belfast.
 Mrs. A. B. Bingham, 86 Redcar Street, Castlereagh Road.
 Miss E. M. Chambers, B.Sc., Riddell Hall, Stranmillis.
 Robt. E. L. Clarke, B.A., B.E., 42 Railway Street, Lisburn.
 Miss M. Cunningham, 67 King's Road, Knock.
 Miss M. H. Duffield, Forthbrook, Ballygomartin Road, Belfast.
 Thomas Elwood, 3 Walmer Terrace, Holywood, Co. Down.
 Miss A. L. Ferguson, 116 Balmoral Avenue, Belfast.
 Miss K. Flynn, "Clonlee," St. James' Park, Belfast.
 Miss Mary Gaffikin, 21 Deramore Drive, Malone Road.
 S. D. Glassey, Macosquin, Coleraine, Co. Derry.
 Miss M. Glendinning, 26 Sans Souci Park Belfast. (Transferred from Juniors.)
 John Hamilton, 78 Antrim Road, Belfast.
 Mrs. H. E. Hamilton, 78 Antrim Road, Belfast.
 Mrs. Wm. H. Hamilton, Hillside, Antrim Road, Belfast.
 Wm. H. Hamilton, Hillside, Antrim Road, Belfast.
 J. O. Harpur, 76 Rushfield Avenue, Belfast.
 Miss Dorothy Eileen Horton, Garfield Chambers, 44a Royal Avenue.
 Cyril Charles Horton, 53 Ponsonby Avenue, Antrim Road.
 Miss K. N. Jackson, Martinez Villas, Bloomfield, Belfast.
 Miss E. D. Jackson, Martinez Villas, Bloomfield, Belfast.
 Wm. Jas. Johnston, 45 Pretoria Street, Stranmillis, Belfast.
 Miss I. K. Johnston, B.Sc., 38 Stranmillis Gardens, Belfast.
 Miss Gwynne Johnstone, 6 University Street, Belfast.
 Wm. J. Kerr, 65 Dunluce Avenue, Belfast.
 Miss F. B. Knox, Roxburgh, Ranturly Avenue, Bangor.
 Miss Dorothy Melville, "Charis," Ballygomartin Road, Belfast.
 Miss Kathleen Melville, "Charis," Ballygomartin Road, Belfast.
 Miss Napier, Training College, Stranmillis, Belfast.
 Miss Margaret Noble, 24 The Mount, Belfast.
 Mrs. Pollock, 67 King's Road, Knock, Belfast.
 J. D. Prenter, "Le Nid," Ormiston Crescent, Knock, Belfast.
 Miss Frances Rollins, 26 Victoria Road, Sydenham, Co. Down.
 Miss Florence Rutherford, 86 Limestone Road, Belfast.
 Miss A. E. Shaw, 20 Harcourt Street, Belfast.
 Miss A. Smiles, West Bank, Strandtown, Belfast.
 Miss H. Smyth, 4 Knockdene Park, Knock, Belfast.
 Wm. H. Spence, Brownlow Street, Comber, Co. Down.
 J. B. Stewart, M.B., Ch.L.R.C.P., Portglenone, Co. Antrim.
 Alex. Thompson, 12 Donegall Road, Belfast.
 Miss A. G. Tripp, 20 College Green, Belfast.
 George Williams, M.Sc., Zoological Department, Queen's University.

LIST OF MEMBERS ELECTED DURING YEAR 1931.

Francis G. Hartnell Anderson, M.A., I.C.S., "Brooklands," Annadale Avenue.

Miss Kathleen M. Bourke, 13 University Avenue, Belfast.

Mrs. Elizabeth Barnfather, 4 Eileen Gardens, Windsor Park, Belfast.

Thomas E. Buckley, 25 Sorella Street, Belfast.

Miss Elsie Bruce, "Woodview," Dunmurry, Co. Antrim.

Miss Winifred Brooke, M.A., "Danesmere," Rosetta Avenue, Belfast.

Mrs. Margaret L. Brooke, "Danesmere," Rosetta Avenue, Belfast.

Mrs. Bolton, 397 Antrim Road, Belfast.

Mrs. W. G. C. Crawford, "Rathdune," Downpatrick, Co. Down.

Thomas Henry Convery, 53 Botanic Avenue, Belfast.

William J. Copeland, 43 Camden Street, Belfast.

Miss Minnie Dunlop, Chichester Gardens, Antrim Road, Belfast.

John Donnan, "Walford," Nendrum Gardens, Bloomfield, Belfast.

Professor Thomson Flynn, D.Sc., Queen's University, Belfast.

Miss J. Eileen Gillies, Riddell Hall, Stranmillis Road, Belfast.

Miss May Gallagher, 8 Westminster Street, Cromwell Road, Belfast.

Richard Lilburn Henderson (Captain), *Belfast News-Letter*, Ltd.

Miss Myfanney Hammond, The Library, Queen's University, Belfast.

J. J. Hartley, M.Sc., Department of Geology, Queen's University, Belfast.

Rev. Thomas M. Johnstone, Antrim Lodge, Antrim Road, Belfast.

Miss E. Beatrice Lee, Feenish House, 121 Crumlin Road, Belfast.

Miss Elsie Lee, Feenish House, 121 Crumlin Road, Belfast.

James S. Loughridge, B.Sc., M.D., F.R.C.S., 52 Elmwood Avenue, Belfast.

Rev. R. Nevin Lyons, 16 Malone Park, Belfast.

George Chapman Lepper, B.A., 72 High Street, Belfast.

Mrs. Ida Larmor, Fairy Hill, Dunmurry.

Miss Isobel Mackie, "Hazelbank," Whiteabbey, Co. Antrim.

Robert Murray, 17 Cheviot Street, Belfast.

Patrick Joseph Montague, St. Joseph's Terrace, Ballyhackamore, Belfast.

John S. Mortimer, 200 Ravenhill Road, Belfast.

Samuel J. M'Avoy, 1 College Square North, Belfast.

James H. M'Gowan, 33 Bingham Street, Bangor, Co. Down.

Ranald Macdonald (Transferred from Juniors), 94 Antrim Road, Belfast.

Miss Gretta M'Combe, 183 Deerpark Road, Belfast.

John Milligan M'Clung, Ava House, Old Cavehill Road, Belfast.

Lydia Mary M'Robert (Miss), "Dochais," Knockvale Park, Belfast.

Miss M. M'Crea, 3 Mount Pleasant, Stranmillis, Belfast.

William James Peden (Transferred from Juniors), 27 Ashgrove Park, Belfast.

John B. Pears, Woodlands, Holywood, Co. Down.

Miss Christina Plenderleith, 9 Fortfield Terrace, Greenisland

James M. Rogan, "Ernestville," Ava Avenue, Belfast.

Reginald Harvey W. Reavy, 11 Larkstone Street, Belfast.

Grier Reilly (Transferred from Juniors), 18 Salisbury Gardens, Belfast.

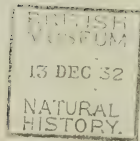
Mrs. E. Stoneley, Ballantrae, 58 Ulsterville Avenue, Belfast.

Wm. Topping, 53 Haddington Gardens, Belfast.

F. R. Unwin, Brighton House, Dunmurry, Co. Antrim.

Cunningham Witherow, 95 Great Victoria Street, Belfast.

Edward Shanks, 3 Galwally Park, Belfast. (This gentleman was marked in Register, "Gone away, left no address" in March, 1930, but he got into communication with Mr. Davison during 1931 and asked to re-join. He also paid all arrears due to Club.)



LEPIDOPTERA
OF
COUNTY DOWN.

— By —

Rev. Canon G. FOSTER, B.D.

Being an Appendix (No. 5 of Vol. III.) to the Proceedings of
The Belfast Naturalists' Field Club for 1931-32.

THE MUSEUM OF THE
NATURAL HISTORY



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LEPIDOPTERA OF COUNTY DOWN.

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REV. CANON G. FOSTER, B.D.

The County of Down offers many attractions for entomologists owing to its sea coast with some very rich stretches of sandhills, its mosses lying in the hollows between the uplands, and above all the Mourne Mountain Range. Here the Donard Demesne, Tollymore Park and Slieve Bearnagh, in the South the woods round Rostrevor are very productive. Again, since the County touches on Lough Neagh, it has a share in the interesting species which are to be found along those shores. The Lurgan district and the Belfast district have been well worked, the latter by the late Dean Bristow and Mr. C. W. Watts. The Lurgan district includes portions of Armagh, Down, and Antrim; that of Belfast portions of Down and Antrim. Accordingly a record, "Belfast district," may be from either Down or Antrim, unless more exact information is given. The same thing applies to "Lurgan district." But even if a record is in reality one that has to do with a locality a few yards across the Down border, in all probability, the insect concerned could be found within that border. And Dean Bristow's "Belfast" records are for Knockbreda, and Watts' for Ormeau, apparently.

As regards the Butterflies, I regret to say I can only record the typical forms, as I have never concentrated on them and their varieties.

ABBREVIATIONS, ETC.

B. ; Edwin Birchell.

Bar. ; C. G. Barrett (in Kane).

B.N. 1874 ; Belfast Naturalists' Field Club Guide, 1874.

B.N. 1902 ; Belfast Naturalists' Field Club Guide, 1902.

Bw. ; the late Dean Bristow of Belfast (in Kane).

B.N.F.C. Report, 1893-94 (Appendices, Vol. II, No. 4, pp. 115-131) contains C. W. Watts' "Lepidoptera taken in Belfast District."

C. W. W.; C. W. Watts (mostly only those of his records which are confirmed in "Kane" are given).

"Entomologist," LXIV, March, 1931, contains an interesting article by Rev. W. F. Johnson, dealing largely with Co. Down Lepidoptera.

Greer, Cat.; Lepidoptera of North of Ireland. (B.N.F.C. Appendices, Vol. III, No. 4, pp. 31-60.)

I.N.; Irish Naturalist.

I.N.J.; Irish Naturalists' Journal.

Kane; W. F. de V. Kane, Catalogue of Irish Lepidoptera (1901).

Pn.; Robert Patterson "On Insects mentioned in Shakespeare."

R.G.A.; R. Guy Atkinson, Rostrevor.

W.F.J.; the Rev. W. F. Johnson, M.A., Rostrevor.

Wilkinson; "British Tortrices" (1859).

W.M.C.; W. M. Crawford, Belfast.

Where no authority is given, the writer is to be understood as such.

I am greatly indebted to the Rev. W. F. Johnson for his help given by articles in I.N. and I.N.J., as well as in private letters.

The figures in brackets indicate the page or pages in Kane's "Catalogue of the Lepidoptera of Ireland," at which the insects will be found.

I. RHOPALOCERA.

Pieris brassicae L. and **P. rapae** L. Abundant generally. (1, 155.)

P. napi L. The Green-veined White. Has its two broods in great abundance from May till August. (1, 155.)

Euchloë cardamines L. The Orange Tip. Is to be seen every spring, but not nearly as abundant as I have seen it in the hillside glens round Belfast. (3.)

Colias edusa Fb. The Clouded Yellow. Miss Muriel Whelan tells me she has seen a single specimen on the shore at Killard in the month of August. (4, 155.)

Gonepteryx rhamni L. "On the 4th of July, 1829, I watched one for some time on the quay of Belfast,"—Pn. (B.N., 1902, p. 199); Newcastle, in 1910, by G. Donaldson and recorded in B.N.F.C. Proc., Vol. VI, pp. 381 and 400. This specimen, a male, is now in the collection of Mr. G. C. Reilly. (4, 155.)

Vanessa urticae L. The small Tortoise Shell. Awakens in March or April and is very abundant in the early summer, to appear again in July and August. (9.)

V. io L. The Peacock. Does not seem to make its way so far North as Strangford, but I hear of it some seasons at Lakeview near Lurgan, and at Waringstown in the autumn, when it favours the flowers of *Buddleia variabilis*, along with the Tortoise Shell and the Red Admiral. (9.)

V. atalanta L. The Red Admiral. Abundant August and September in gardens. I have beaten it out of a hedge near the cliffs at Killard in numbers during the autumn. Perhaps they were migrants, resting there after the sea crossing. (10.)

V. antiopa L. The only record is that from Knockbreda, about 1874, of Dean Bristow. B.N., 1902, p. 200.

Pyrameis cardui L. General, May and August; W.F.J. reports larvæ at Newcastle, 27.VII.'00. (10.)

Argynnis aglaia L. The Dark Green Fritillary. Is to be met with abundantly on the Dundrum sandhills during July; Bryansford, Pn. (4.)

A. paphia L. Donard Demesne and other woods, C.W.W.; Tollymore Park, Pn.; Rostrevor, W.F.J. (5.)

Pararge ægeria var. *ægerides* Stgr. The Speckled Wood. Its first brood appears in April and there is a constant succession till September. (11.)

P. semele L. The Grayling. Abundant during August and September in the Dundrum sandhills, and also among the granite on Slieve Donard. (11.)

P. megæra L. The Wall Butterfly. My records are all for August, and then it is abundant everywhere. (11.)

Epinephele janira L. Meadow Brown. Appears the end of June and continues on till August. I have met blanché specimens at Ardkeen and at Castle Ward. (12.)

E. hyperanthus L. The Ringlet. Locally abundant and appears early in July; Donard Demesne, Castle Ward. (13.)

Cænonympha pamphilus L. The Small Heath. General; my records are from Slieve Donard, where very large specimens occur. (13.)

Thecla rubi L. The Green Hairstreak. The only locality I know of in County Down is among the birches on the mountain south of Tollymore Park. (14.)

Polyommatus phlæas L. The Small Copper. Abundant in both broods from Groomsport south (14.)

Lycæna icarus Rott. The Common Blue. Abundant especially in sandhills on the coast from June till August. At Killard I examined some hundreds asleep on blades of bent grass, but they did not show any noteworthy variation. (15.)

L. argiolus L. The Holly Blue. Is to be met with in Donard Demesne, and more abundantly in Tollymore Park and on the Hare's Gap. (17, 156.)

L. ægon Schiff. (= *argus* L.). The Silver-studded Blue. Birchall's old record is still awaiting confirmation; as also of

L. astrarche Bgstr. Both "Mourne Mts., near Ros-trevor." (14.)

II. HETEROCERA.

SPHINGIDÆ.

Acherontia atropos L. The Death's Head. Has appeared at Portaferry and Downpatrick; Moyallen, W.F.J. (18, 156.)

Sphinx convolvuli L. The Convolvulus Hawk Moth. Within recent years has appeared at Quinton, Strangford, and Belfast, also Lurgan. (18.)

Deilephila livornica Esp. The Striped Hawk. Ormeau Park, Belfast, June 7 and 11, 1888, C.W.W. (19, 156.)

Chærocampa elpenor L. The Elephant Hawk. The perfect insect used to frequent flowers of the yellow flag at the end of June beside Lough Neagh. At Strangford the full-fed caterpillar frequently turns up during the autumn; Loughbrickland, W.F.J. (20.)

Smerinthus ocellatus L. The Eyed Hawk. The larvæ are to be found on willow in the marshes round Lough Neagh. (20, 156.)

S. populi L. The Poplar Hawk. The larvæ are to be found everywhere on willow and poplar, and the perfect insect is often met with in June. (20.)

Macroglossa stellatarum L. The Humming-bird Hawk. Is abundant certain seasons throughout the country, especially on the Jackdaw cliffs at Killard, one specimen there last season (1931) in July. As it is a migrant, perhaps these cliffs are the first land they meet after their passage. (21.)

M. tityus L. (= *bombyliformis* Och.). The Bee Hawk. During the war, while working at Sphagnum gathered near Kirkeubbin and Carrowdore, I have found in it the pupa which duly emerged. Donard Demesne and Mourne Park, Kilkeel, are other localities, also Crawfordsburn, Bw. (21, 156.)

Trochilium crabroniformis Lewin. The Hornet Clearwing. Larvæ abundant on old willows and poplars at Kirkcubbin, the imago also to be found sitting on the trunk; Knockbreda, Bw. (22.)

ZYGÆNIDÆ.

Zygæna filipendulæ L. Abundant, especially on sand-hills in July, e.g., Killard. (23.)

Z. loniceræ Esp. Very abundant on vetch flowers at Tullylish, June, 1905; Newcastle, Warrenpoint, 21st July, 1928, W.F.J. (23, 157.)

NOTODONTIDÆ.

Cerura furcula L. Larvæ on willow in marshes round Lough Neagh. (31, 158.)

Dicranura vinula L. Larvæ abundant on willow, Strangford, Newcastle and Warrenpoint. (32.)

Pheosia dictæa L. (= *tremula* Clerck). Caterpillar on willow, Newtownards and Kirkecubbin. (33.)

Ph. dictæoides Esp. Larvæ on birch, Tollymore Park, September. (33, 158.)

Notodonta ziczac L. Caterpillar on willow, Lough Neagh and Saul marshes; Rostrevor, W.F.J. (33.)

N. dromedarius L. Caterpillar on alder, Kilelief; birch, Lough Neagh. (33, 158.)

Lophopteryx camelina L. Imago at light, Strangford and Rostrevor; larvæ on birch, Strangford and Lough Neagh, also on lime, Castle Ward. (32.)

Phalera bucephala L. Lough Neagh district, abundant. (34.)

Pygæra curtula L. No new record since that of Mr. Watts (B.N., 1902, p. 200) of the larvæ at Bloody Bridge, Newcastle. (34.)

P. pigra Hufn. Larvæ on willow, Mourne Mountains, C.W.W. (34.)

Habrosyne derasa L. Occasional specimens have turned up at Kirkecubbin, Strangford and Lurgan. (34.)

Thyatira batis L. Same localities, only more abundant; Rostrevor, W.F.J. (35.)

Palimpsestis duplaris L. Near Lurgan; abundant at Rostrevor. (36, 159.)

Orgyia antiqua L. Larva, Kirkecubbin, on sycamore. (30.)

Pœcilocampa populi L. Rostrevor, December, W.F.J. and R.G.A. (30.)

Lasiocampa quercus, var. *callunæ* Palmer. Abundant, larva and imago, Strangford, Lurgan; Dundrum, W.F.J.; Rostrevor, W.F.J. and R.G.A. (30.)

Macrothylacia rubi L. Larva, Slieve Donard, September; Rostrevor, imago, 13th June, 1929, larvæ, September 6th, W.F.J. and R.G.A. (30.)

Saturnia pavonia L. The green caterpillar and the shuttle-shaped cocoon are often to be found on heather, e.g., Slieve Donard and Mourne Mountains. (31.)

DREPANIDÆ.

Drepana lacertinaria L. The perfect insect among birch in June, Tollymore; larva on birch, Tollymore, September. (31.)

Cilix glaucata Scop. Occasionally to be found settled on the glass of a window, attracted by light, here at Strangford in July. Also occurs at Kilkeel and Saintfield. Rostrevor at light, 4th September, R.G.A. (31.)

NOLIDÆ.

Nola confusalis H.S. Castle Ward, June; Saintfield, May; numerous Donard Demesne, Bw. (24, 157.)

Hylophila prasinana L. Common in Donard Demesne, C.W.W.; Rostrevor, one among bracken, 24th June, R.G.A. (24.)

ARCTIIDÆ.

Spilosoma menthastri Esp. and **S. lubricipeda** L. Both abundant everywhere; I have not met much variation in County Down. (27.)

Diaphora mendica Clerck. The pupa is to be found under moss on rocks near Strangford, but the imago I have not met with here. Both sexes are silky white, with in some cases a yellowish tinge. (26, 157.)

Phragmatobia fuliginosa L. Larvæ under moss through winter. The perfect insect is to be met with at Strangford and Castle Ward throughout July and seems larger, brighter, and less transparent than Scotch specimens. Common at Rostrevor, R.G.A. (26.)

Parasemia plantaginis L. On heather in July, Tollymore and Donard; Dundrum, Rostrevor, W.F.J. (25.)

Arctia caia L. Abundant everywhere. (26.)

Hipocrita jacobaeæ L. Rostrevor, end of June, is the only locality in Down where I have met with the Cinnabar. Common, Rostrevor, W.F.J. (25.)

LITHOSIIDÆ.

Nudaria mundana L. Very abundant, Newcastle and Strangford; Rostrevor, W.F.J. (24.)

Lithosia complana L. "Co. Down, Bw.," is Kane's note on this species. (24.)

NOCTUIDÆ.

Demas coryli L. Larva on hazel, September. Tollymore; Belvoir Park, B.N., 1874; Rostrevor, 1st June, R.G.A. (38.)

Acronycta megacephala Fb. "Newcastle, rare in Down." C.W.W. (39, 159.)

A. psi L. General. Imago often on tree trunks. (39.)

A. rumicis L. Of general distribution and abundant. (40.)

Bryophila perla Fb. Abundant, Strangford and Portaferry, comes to light. Newcastle, Kane; Newry market, W.F.J. "Not uncommon in July at Rostrevor," W.F.J. (38.)

Agrotis segetum Schiff. Abundant, especially in autumn. (55.)

A. vestigialis Hufn. Plentiful on the sandhills at Tyrella and Dundrum, but I failed to find it in those further north. (53.)

A. cursoria Bork. One, Dundrum, Aug. '29; "common Dundrum," C.W.W. (56, 160.)

A. corticea Hb. B.N., 1874, "Belvoir Park." (56, 160.)

A. nigricans L. Abundant both sides of Ards, also Lough Neagh shores. (57.)

A. tritici L. Abundant on all coast sandhills; occasionally at Strangford, wandering in from Killard. (57.)

A. exclamationis L. Abundant everywhere. (56.)

A. suffusa Hb. Kirkeubbin and Strangford. Some years in great abundance. I have counted 40 on one small veronica. "After appearing on ivy, it appears again on sallow in spring at Rostrevor," W.F.J. (54, as *ypsilon* Rott.)

A. strigula Thnb. Kirkeubbin, heather; Strangford light and Veronica; Rostrevor, W.F.J. and R.G.A. (59.)

A. præcox L. Dundrum sandhills, abundant at heather bloom, August and September. (59.)

A. lucerneæ L. "Dundrum sandhills, common," C.W.W., but I did not see it. (59.)

A. agathina Dup. Abundant, August-September, 1929, on wing and at heather, Dundrum sandhills. (58.)

A. saucia Hb. A few specimens turn up most years at ivy and garden flowers in autumn, and at light and flowers in June; these occur, both in the type form and var. *margaritaria*, the latter the most frequent. Rostrevor at light, 12th Oct. '28, W.F.J. (54, 160.)

Noctua augur Fb. Generally distributed. (60.)

N. glareosa Esp. Seems confined to the sea coasts and mountains. Kirkeubbin, Strangford, Rathfriland and Rostrevor. (60.)

N. baia Fb. Generally abundant. (62.)

N. c-nigrum L. Kirkeubbin, Strangford. Killard. (60.)

N. triangulum Hufn. Rostrevor, W.F.J. (60.)

N. brunnea Fb. General; Rostrevor, "very dark," W.F.J. (61.)

N. primulae Esp. General and very varied. (61, as var. of *festiva* Hb.)

N. dahlii Hb. Abundant in Castle Ward. (62.)

N. rubi View. Both broods abundant, June and August (62.)

N. umbrosa, Hb. Frequent, Strangford and Lough Neagh; Rostrevor, W.F.J. (62.)

N. xanthographa Fb. Abundant everywhere. (63.)

N. plecta L. Abundant everywhere. (60.)

Axyia putris L. Kirkeubbin, Strangford; Rostrevor, W.F.J. (44.)

Triphæna orbona Fb. and **T. pronuba** Fb. Common everywhere. (63, 166.)

T. fimbria L. Rostrevor, Lough Neagh; Castle Ward, W.M.C. (63.)

T. ianthina Esp. Abundant. (63.)

Barathra brassicae L. Abundant everywhere. (46.)

Mamestra oleracea L. Abundant everywhere. (82.)

M. glauca Hb. Rostrevor, W.F.J. (81.)

M. dissimilis Kn. Kirkeubbin, abundant. (82, 161.)

M. thalassina Rott. Abundant everywhere. (83.)

M. contigua Vill. Once in Donard Demesne, C.W.W. (83.)

M. pisi L. Generally distributed; the striped caterpillar often to be seen on rushes in August. (82.)

M. dentina Esp. General. (82.)

Dianthœcia conspersa Esp. Abundant on sea campion in June, Kirkcubbin, Ardkeen, Strangford, Castle Ward; at Knock; Lagan marshes, C.W.W. (74, as *nana* Rott.)

D. capsincola Hb. One specimen on sea campion, Oldcourt, July. Lagan marshes, C.W.W. (75.)

D. capsophila Dup. At sea campion in June, Ardglass, Oldcourt, Castle Ward; the larva may be found later by looking inside perforated bladders. (76, 161.)

Hecatera serena Fb. Ardglass, one (the late J. Harrison, Lurgan); Strangford, three; Rostrevor, two at light, R.G.A.; Dundrum, W.F.J. (78, 161.)

Epineuronia popularis Fb. One at light, Strangford; do., Rostrevor, W.F.J. (45.)

Tholera cespitis Fb. One, Dundrum sandhills, end Aug., 1929. (46, 160.)

Charæas graminis L. Specimens turn up in most places every season. (45.)

Hadena adusta Esp. Abundant, Kirkcubbin, Strangford, Newcastle. (81.)

H. protea Bork. Abundant, Rostrevor (Malcomson, Greer, Cat.). (81, 161.)

Luperina testacea Hb. Abundant, Roddans, Strangford, Rathdrum; Rostrevor, W.F.J. (46.)

Cerigo matura Hufn. Kirkcubbin, Lough Neagh; Rostrevor, W.F.J. (46.)

Hama abjecta Hb. Rostrevor, July, at light, W.F.J. (46, 160.)

Apamea gemina Hb. Common everywhere. (47.)

A. basilinea Fb. Common everywhere. (47.)

A. unanimis Tr. Abundant, Lough Neagh marshes. (47.)

A. secalis L. (= *didyma* Esp.). Common everywhere. (48.)

A. ophiogramma Esp. Abundant, Lough Neagh marshes; Rostrevor, W.F.J. (47, 160.)

Miana strigilis Clerck. Strangford, Kirkeubbin, but H. J. Turner (Ent. Record) writes: "Your specimens were not that species but the newly-differentiated *latruncula*; Rostrevor, W.F.J. (48.)

M. fasciuncula Haw. Strangford, Kirkeubbin; Rostrevor, W.F.J. (49.)

M. literosa Haw. Abundant, Lough Neagh, Kirkeubbin, Strangford, Dundrum, Rostrevor. (50.)

M. bicoloria Vill. Same distribution, but scarcer. (50, 160.)

Xylophasia rurea Fb. Common everywhere. (44.)

X. lithoxylea Fb. Generally distributed. (44.)

X. monoglypha Hufn. Common everywhere. (44.)

Aporophyla nigra Haw. Rostrevor, Strangford, Kirkeubbin, some years abundant. Newcastle and Rostrevor, W.F.J. (79.)

Polia chi L. B.N., 1874, "scarce in Down." I know of no Down record, but as it is reported as abundant on basalt in Antrim and Derry this record for Down is no doubt correct. (78.)

Miselia oxyacanthæ L. Generally distributed, on ivy blossom. (80.)

Agriopis aprilina L. "Common near Belfast," C.W.W., but I have never met it. (80.)

Euplexia lucipara L. Generally distributed. (80.)

Phlogophora meticulosa L. Common in both broods. (80.)

Mormo maura L. Waringstown, R.G.A.; in sand martin's nest on Lagan, Westropp; abundant, Rostrevor, Aug., '29, W.F.J. (64.)

Nœnia typica L. General distribution. (64.)

Helotropha leucostigma Hb. Lough Neagh marshes, Strangford, Lagan marshes (C.W.W.), both type and var. *fibrosa* Hubn. (48.)

Hydræcia nictitans Bork. Lough Neagh; general round the coast. C.W.W. says "most, if not all, the specimens from this district are referable to *H. lucens*," But H. J.

Turner has placed all my Down specimens under *nictitans* and *crinanensis*, the latter occurring at Kirkeubbin. Var. *erythrostigma* Haw., Rostrevor, W.F.J.; fairly plentiful also elsewhere. (43.)

H. micacea Bork. Common everywhere. (43.)

Nonagria typhæ Esp. To be found wherever *Typha* grows. Pupa may be secured within the stems in August, or the perfect insect hovering round the flower in September. (42, as *N. arundinis* Fb.)

Tapinostola fulva Hb. Generally distributed. (42.)

Calamia lutosa Hb. To be secured at night in September on stem or blossom of reed in Strangford district, and no doubt in most reed beds throughout the country. (42.)

Leucania pallens L. and **impura** Hb. Common everywhere. (42 and 41.)

L. comma L. Strangford, Lough Neagh. (41.)

L. lithargyria Esp. Lough Neagh, Kirkeubbin, Strangford; Rostrevor, W.F.J. (41.)

L. conigera Fb. Lagan marshes, C.W.W.; Rostrevor, W.F.J. (41.)

Grammesia trigrammica Hufn. Saintfield; Rostrevor, G.F. and W.F.J. (52.)

Stilbia anomala Haw. Abundant on sandhills, Tyrella and Dundrum, Aug., 1929. On Mourne Mountains, C.W.W. (52.)

Caradrina morpheus Hufn. Strangford, Kirkeubbin. (53.)

C. taraxaci Hb. Kirkeubbin, Strangford; Rostrevor, W.F.J. (53.)

C. quadripunctata Fb. Common everywhere. (53.)

Petilampa arcuosa Haw. Near Lurgan; Newcastle, B.W.; Rostrevor, W.F.J. (50.)

Rusina tenebrosa Hb. Rostrevor. (53.)

Amphipyra pyramidea L. Rostrevor, abundant, W.F.J. and R.G.A. (63.)

A. tragopogonis L. Common everywhere. (64.)

Pachnobia rubricosa Fb. Common, Mourne Mountains, C.W.W. (64.)

Tæniocampa gothica L. General: (65.)

T. stabilis View and **T. incerta** Hufn. General. (66 and 65.)

T. pulverulenta Esp. Rostrevor, W.F.J. (67, 161.)

T. munda Esp. Waringstown, Castle Ward; Rostrevor, W.F.J. (67, 161.)

T. opima Hb. Lough Neagh marshes; Lagan marshes, C.W.W. (66, 161.)

T. gracilis Fb. Lough Neagh, Kirkeubbin. (66.)

Calymnia trapezina L. Rostrevor, Strangford. (70.)

Cirrhoëdia xerampelina Hb. Lough Neagh; Castlewellan, C.W.W.; Rostrevor, W.F.J. (70.)

Omphaloxelis lunosa Haw. Kirkeubbin, Strangford, Rostrevor; at light, also at ragwort and heather. (69.)

Amathes (Orthosia) lota Clerck and **A. macilenta** Hb. General at ivy. (68.)

A. circellaris Hufn. Very abundant everywhere; var. *ferruginea*, Newcastle, W.F.J. (70.)

Anchocelis helvola L. Abundant on heather end of August and September, 1929, at Dundrum. (68, 161.)

A. pistacina Fb. Strangford, Kirkeubbin, Drumbeg, Lurgan. (68.)

Xanthia flavago Fb. and **X. fulvago** L. Generally distributed. (70 and 69.)

Orrhodia vaccinii L. Generally distributed. (69.)

O. ligula Esp. Belfast district, C.W.W. (69.)

Scopelosoma satellitia L. Common everywhere. (69.)

Xylina socia Rott. At ivy and willow, Strangford and Kirkeubbin. (86.)

X. ornithopus Rott. A single specimen at ivy, Strangford; do., Rostrevor, at light, R.G.A.; do., Rostrevor, on wall, 11th October, 1930. W.F.J. (85.)

Calocampa exoleta Hb. and **C. vetusta** L. Generally distributed at ivy and willow, showing up till June. (85.)

Xylocampa areola Esp. At light and willow, Strangford, Kirkeubbin; Rostrevor, W.F.J. (84.)

Cucullia umbratica L. Very abundant, Lurgan, Strangford, Kirkeubbin; "Donard Demesne, scarce," C.W.W.; Rostrevor, W.F.J. (87.)

C. chamomillæ Schiff. Kirkeubbin, May, abundant at various flowers. (87.)

Anarta myrtilli L. Mourne Mountains, common, G.F. and C.W.W., W.F.J. (90.)

Pyrria umbra Hufn. One at veronica, Strangford, July, 1929. (90, 162.)

Rivula sericealis Scop. Common in marshes, Strangford, Lurgan, Belfast. (92.)

Prothymia viridaria Clerck. Very abundant on Mourne Mountains; ab. *fusca* Tutt, Batt's Wood, Rostrevor, R.G.A. (91.)

Scoliopteryx libatrix L. From August to May in most districts; often found hibernating in dark corners. (87.)

Plusia chrysis L. Abundant everywhere. (88.)

P. festuæ L. Abundant, Lurgan, Belfast, Kirkeubbin, Strangford. (89.)

P. iota L. Scarce, but generally distributed. (89.)

P. pulchrina Haw. Abundant everywhere. (89.)

P. gamma L. Appears everywhere from May till October. (89.)

P. interrogationis L. One at Rostrevor, 3rd July, W.F.J. (89, 162.)

Abrostola triplasia L. and **A. tripartita** Hufn. Generally distributed. (87.)

Euclidia mi Clerck. At Newcastle, in June, 1922, I got on to the heather at 10 a.m., and *mi* rose in clouds at each step, but I have not seen it there since. (91.)

Zanclognatha grisealis Hb. Generally distributed. (92.)

Z. tarsipennalis Tr. Strangford; Rostrevor, W.F.J.; Belfast, C.W.W. (92.)

Hypena proboscidalis L. Common everywhere. (92.)

GEOMETRIDÆ.

Pseudoterpna pruinata Hufn. Generally distributed. (101.)

Geometra papilionaria L. Waringstown; abundant Rostrevor, W.F.J. (102.)

[**Nemoria viridata** L. B.N., 1874, "Newcastle," but the record is unconfirmed, and all Irish records of *viridata* are doubtful. Probably the Newcastle record refers to *Hemithea strigata*, which is widely distributed in Ireland, though there is no certain Co. Down record.] (102.)

Iodis lactearia L. Rostrevor woods. (102, 166.)

Acidalia inornata Haw. Near Annalong. (104.)

A. ayersata L. General distribution; banded form, Rostrevor. (104.)

A. bisetata Hufn. and **A. dimidiata** Hufn. General distribution. (103.)

A. marginepunctata Göze. Kilkeel, C.W.W. (103.)

Ortholitha (Eubolia) plumbaria Fb. and **O. limitata** Scop. General distribution. (130.)

Anaitis plagiata L. Groomsport, Strangford, Newcastle; Rostrevor, W.F.J. (130.)

Mesotype virgata Rott. Newcastle, Bw. (130.)

Chesias spartiata Fues. Rostrevor, W.F.J. (131.)

Cheimatobia brumata L. Common everywhere. (108.)

Ch. boreata Hb. Lurgan district, Rostrevor. (108, 163.)

Triphosa dubitata L. Strangford; Rostrevor, W.F.J. (127.)

Eustroma (Cidaria) silaceata Hb. Castle Ward. (128.)

Lygris (Cidaria) prunata L. Strandtown, Strangford; Rostrevor, W.F.J. (129.)

L. testata L. Slieve Donard; Rostrevor, W.F.J. (129.)

L. populata L. Strangford, Dundrum; Greencastle, Rostrevor, W.F.J. (129.)

Cidaria pyraliata Fb. Dundrum to Warrenpoint, W.F.J. (129, as *dotata* L.)

C. fulvata Forst. Distribution general. (129.)

C. corylata Thmb. Tollymore; Rostrevor, W.F.J. (127.)

C. truncata Hufn. Spring brood and autumn brood both general, (128.)

C. immanata Haw. Especially common in the mountains. (128.)

C. sliterata Hufn. Very abundant on ivy blossom. (127.)

C. miata L. Also general on ivy, but much scarcer. (127.)

Thera variata Schiff. Distribution general in both broods. (118.)

T. firmata Hb. June, 1905, on pine trunks in Donard Demesne; 7th September, 1929, Rostrevor, W.F.J. (118.)

Lampropteryx suffumata Hb. Follows its usual habit of frequenting one small area in a district, but distribution general. (128.)

Coremia munitata Hb. Slieve Croob, C.W.W., B.N., 1902, p. 202. (123.)

C. unidentaria Haw. Tollymore. June; Rostrevor, July, W.F.J. (125.)

C. ferrugata Clerck. Both broods abundant everywhere. (123.)

C. designata Hufn. Strangford, The Quoye; Rostrevor, W.F.J. (123.)

Amcebe viridaria Fb. Distribution general, especially on rough lands. (110.)

Malenydris salicata Hb. Abundant, Killard, end of July; 2nd May, Rostrevor, W.F.J. (109, 163.)

M. multistrigaria Haw. Strangford; Rostrevor, W.F.J. (109.)

M. didymata L. Common everywhere, especially on heather. (109.)

Oporabia dilutata Bork. Strangford, Lurgan district; Rostrevor, W.F.J. (108, 163.)

O. autumnata Gn. Strangford; Rostrevor, 3rd October, 1929, W.F.J. (108.)

O. filigrammaria H.S. Mourne Mountains, C.W.W. (108.)

Venusia cambrica Curt. Saintfield; Donard Demesne, C.W.W. (103.)

Entephria cæsiata Lang. Slieve Donard, very abundant; Rostrevor, W.F.J. (109.)

Xanthorhoë montanata Bork. Abundant everywhere. (121.)

X. fluctuata L. Abundant everywhere. (122.)

X. galiata Hb. On sandhills of coast, Killard, Ardglass, Dundrum; Rostrevor, W.F.J. (122.)

X. sociata Bork. Abundant. (121.)

X. tristata L. Tollymore, C.W.W. (121, 164.)

X. unangulata Haw. "Belfast," Bw., apparently Knockbreda. (121.)

Mesoleuca albicillata L. Strangford, Newcastle; Rostrevor, W.F.J. (120.)

M. ocellata L. Strangford, Newcastle; Rostrevor, W.F.J. (120.)

M. bicolorata Hufn. Abundant among alder, e.g., Castle Ward, Finnebrogue. (119.)

Perizoma affinitata St. Strangford; Rostrevor, W.F.J. (110.)

P. alchemillata L. Killard; Bryansford, C.W.W.; Rostrevor, W.F.J. (110.)

P. flavofasciata Thu. Abundant in Purdysburn grounds, July, 1928; Belvoir Park, Bw. (110, as *decolorata* Hb.)

P. albulata Schiff. Distributed generally, often abundant. (110.)

P. bifasciata Haw. Odd specimens at Killard and Strangford. (111, as *unifasciata* Haw.)

P. minorata Tr. "Mourne Mountains, very local," Bw. (111.)

P. tæniata St. Donard Demesne, C.W.W.; Belvoir Park, Bw. (110, 163.)

Campptogramma bilineata L. Abundant everywhere. (125.)

Hydriomena sordidata Fb. Abundant everywhere. (119.)

H. impluviata Hb. General distribution. (119, as *trifasciata* Bork.)

H. ruberata Frr. Rostrevor, W.F.J. (118.)

Anticlea badiata Hb. Distribution general. (122.)

A. nigrofasciaria Göze. Waringstown; Rostrevor, W.F.J. (123.)

Asthena candidata Schiff. Abundant, Rostrevor woods, June, 1905, but not seen there since. (102, 162.)

Eupithecia oblongata Thnb. Abundant along the coast. (111.)

E. pulchellata St. Strangford. (111, 163.)

E. venosata Fb. Among sea campion, abundant round Strangford. (111.)

E. constrictata Gn. Dundrum; Kilkeel, C.W.W. (114, 164.)

E. assimilata Gn. Common, C.W.W. (114.)

E. absinthiata Clerck. Killard; Rostrevor, W.F.J. (114.)

E. vulgata Haw. Rostrevor, W.F.J. (114.)

E. lariciata Frr. Donard Demesne. (115, 164.)

E. castigata Hb. Scarva, W.F.J. (112.)

E. satyrata Hb. Abundant; var. *callunaria*, Mourne Mountains, W.F.J. (112.)

E. succenturiata L. Strangford, one; Rostrevor, W.F.J. (111, as *succentaureata*.)

E. subfulvata Haw. Rostrevor, W.F.J. (112, 163.)

E. nanata Hb. Mourne Mountains; Rostrevor, W.F.J. (114.)

E. exigua Hb. Castle Ward. (115.)

E. sobrinata Hb. Among juniper on Mourne Mountains, C.W.W. (115.)

E. pumilata Hb. Strangford; very abundant, Mourne Mountains. (116.)

E. togata Hb. Tollymore, among larch and pine. (116, 164.)

E. rectangulata L. Strangford; Rostrevor, W.F.J. (116.)

E. minutata Gn. ab. *goosensiata* Mab. Mourne Mountains, general, C.W.W. (114.)

Pelurga comitata L. Strangford; Rostrevor, W.F.J. (129.)

Cœnocalpe vittata Bork. Locally abundant in marshes, Strangford, Newcastle, Lough Neagh; Belfast, C.W.W. (126, 164.)

Abraxas grossulariata L. Common everywhere. (107.)

Lomaspilis marginata L. Common in marshes. (107.)

Bapta temerata Hb. Rostrevor wood, Saintfield, Castle Ward, where the larvæ can be beaten out of mountain ash in September. (104, 162.)

Cabera pusaria L. and **C. exanthemata** Scop. Abundant everywhere. (104.)

Numeria pulveraria L. Single specimens at Rostrevor and Tollymore, the latter record from larvæ beaten out of birch; Rostrevor, W.F.J. (105.)

Ellopia prosapiaria L. Abundant among pine, Donard; Rostrevor, W.F.J. (93.)

Metrocampa margaritaria L. Distribution general. (93.)

Eugonia (Ennomos) quercinaria Hufn. One at Castle Ward; Tollymore Park, C.W.W.; Rostrevor, W.F.J. (95.)

E. alniaria L. Three at light, Strangford, September, 1931; three Rostrevor, W.F.J. and R.G.A. (95.)

E. erosaria Bork. B.N., 1874, gives "Down," no later record; but I.N., vol. 20, p. 219, taken at Poyntzpass, just over Down border, by W.F.J., therefore the record is no doubt correct. (95.)

Selenia bilunaria Esp. Both broods generally distributed. (94.)

Gonodontis bidentata Clerck. Distribution general; "very dark," Rostrevor, W.F.J. (95.)

Himera pennaria L. Strangford, Lurgan district, at light, or settled on bracken; Rostrevor, W.F.J. (95.)

Crocallis elinguaris L. Distribution general. (95.)

Urapteryx sambucaria L. Distribution general, often at light. (92.)

Eurymene dolobraria L. One at light, Rostrevor, R.G.A. (94, 162, 166.)

Opisthograptis luteolata L. Abundant everywhere. (93.)

Epione apiciaria Schiff. Very general round willows in marshes, September. (93.)

Semiothisa liturata Clerck. Abundant among pines, Donard Demesne. (105.)

Hybernia rupicapraría Hb. Kirkeubbin, Strangford. (107, 163.)

H. aurantiaria Esp. Rostrevor, W.F.J. (108, 163.)

H. marginaria Bork. Distribution general. (108.)

H. defoliaria Clerck. Very abundant everywhere, larvæ in June, and imago at light through winter; W.F.J. reports rearing from Loughbrickland larvæ a fine male with transverse band and of deep colour. (108.)

Anisopteryx æscularia Schiff. Rostrevor, W.F.J. (108.)

Phigalia pedaria Fb. Belfast, Strangford; Rostrevor, W.F.J., who describes his captures as "very dark." (95.)

Pachys strataria Hufn. Rostrevor, W.F.J., who reports capture of one male, thus confirming W. M. Crawford's record (I.N.J., I, p. 215). (97, 162.)

P. betularia L. Distribution general; W.F.J. reports var. *doubledayaria*, the only record I know of, at Rostrevor. (97.)

Boarmia gemmaria Brahm. ab. **rhomboidaria** Schiff. Rostrevor, W.F.J. (99, 162.)

B. repandata L. Distribution general; var. *conversaria*, C.W.W., Donard; do., Rostrevor, W.F.J. (97.)

Cleora lichenaria Hufn. Abundant, Strangford; larvæ on lichens, imago at light. (97.)

Tephrosia crepuscularia Hb. Donard Demesne, common, C.W.W.; Rostrevor, W.F.J. (99, = *biundularia* Bork.)

T. punctularia Hb. Rostrevor, W.F.J. (101.)

Gnophos obscurata Schiff. Abundant on coast sand-hills, also on heather Kirkeubbin and Rostrevor, the latter specimens are very black. (101, as *G. obscuraria* Hb.)

Ematurga atomaria L. Abundant everywhere on heather. (106.)

Bupalus piniaria L. Abundant among pines, Donard; Rostrevor, W.F.J. (106, 163.)

Thamnonoma vauaria L. Increasingly numerous, Strangford. (105.)

Lozogamma petraría Hb. Abundant among bracken, Oldcourt and Castle Ward; Dundrum, W.F.J. (105.)

[**Chiasma clathrata** L. Abundant locally Lurgan and Belfast, but I have no record just across the border.] (105.)

Scodion belgiaria Hb. Dundrum, and generally distributed over Mourne Mountains. (106.)

HEPIALIDÆ.

Hepialus humuli L. Common everywhere. (28.)

H. lupulinus L. Kirkeubbin; Rostrevor, W.F.J. (158.)

H. velleda Hb. Common everywhere. (28.)

H. hectus L. Donard Demesne, C.W.D.; Rostrevor, W.F.J. (28.)

PYRALIDÆ.

Aglossa pinguinalis L. Lurgan district; Newcastle, Rostrevor; W.F.J. (131.)

Pyrausta aurata Scop. Rostrevor at light, W.F.J.

P. purpuralis L. Saintfield; Rostrevor, W.F.J.; Lurgan district. (132.)

P. ostrinalis Hb. Rostrevor, W.F.J. (132.)

Herbula cespitalis Schiff. Rostrevor, W.F.J. (132.)

Cataclysta lemnata L. Lough Neagh marshes; Lagan marshes, C.W.W. (133.)

Paraponyx stratiotata L. One at pond, Castle Ward. (133.)

Hydrocampa nymphæata L. Lough Neagh, Strangford; Rostrevor, W.F.J. (133.)

H. stagnata Don. Abundant, Strangford. (133.)

Botys ruralis Scop. Strangford, Tyrella; Rostrevor, W.F.J. (133.)

B. fuscalis Schiff. Lough Neagh. (133.)

B. urticata L. Abundant. (132.)

Pionea forficalis L. Common. (133.)

P. stramentalis Hb. Rostrevor, W.F.J., "in some numbers at an old mill." (133, 164.)

Scopula lutealis Hb. Abundant, as also **S. olivalis** Schiff. (132.)

S. prunalis Schiff. Lough Neagh, Finnebrogue. (132.)

S. ferrugalis Schiff. On ivy and ragweed in autumn, general. (132.)

Stenopteryx noctuella Schiff. Odd specimens turn up through the year, but in July, 1929, they were in swarms, e.g., at Killard. (132.)

Scoparia ambigialis Tr. Abundant. (131.)

S. murana Curt. Belfast, Bar. (131.)

S. dubitalis Hb. Abundant. (131.)

S. cembræ Haw. One at Strangford at light, 1930; Valentine's Glen, C.W.W. (131.)

S. angustea St. Strangford, Killard, Tyrella, abundant. (132, 164.)

S. mercurella L. Strangford. (131, 164.)

S. pallida St. One, Strangford; Belfast abundant, C.W.W. (132.)

S. truncicolella Sta. Donard Demesne, C.W.W. (131.)

Chilo forficellus Thmb. Lough Neagh marshes. (136, 165.)

C. mucronellus Schiff. Batt's Wood, Rostrevor, W.F.J. (136.)

Crambus pratellus L. Abundant. (136.)

C. perlellus Scop. Abundant, Killard; Rostrevor, R.G.A.; var. *warringtonellus*, frequent. (136.)

C. selasellus Hb. Killard. (136.)

C. tristellus Fb. Common everywhere. (136.)

C. culmellus L. and **C. hortuellus** Hb. Common everywhere. (137.)

C. geniculeus Haw. Abundant along the coast. (137.)

C. pascuellus L. Scarce, Belfast, C.W.W. (136.)

C. pinellus L. Local, Belfast, C.W.W. (136.)

PHYCITIDÆ.

Salebria fusca Haw. Mourne Mountains, general. (137.)

Homœosoma cretacella Rössl. Newcastle, C.W.W.

H. binævella Hüb. Killard.

Anerastia lotella Hb. Dundrum, C.W.W.; Belfast, Bar. (137.)

Aphomia sociella L. Abundant everywhere. (137.)

Galleria mellonella Fb. Strangford. (137.)

PTEROPHORI.

Platyptilia ochrodactyla Hb. Strangford Lough, Rostrevor, W.F.J. (B.N., 1902, 203.)

P. bertrami Rössl. Belfast, C.W.W. (133, 164.)

P. gonodactyla Schiff. Killard; Belfast, C.W.W. (134, 164.)

Amblyptilia acanthodactyla Hb. Newcastle (B.N., 1902); Belfast, C.W.W. (135, 165.)

Mimaseoptilus plagiodactylus Sta. Rostrevor, W.F.J.; Belfast, C.W.W. (135.)

M. pterodactylus Hb. Belfast, C.W.W.

Aciptilia pentadactyla L. Rostrevor, W.F.J. (135, 165.)

Alucita hexadactyla L. Common everywhere. (136.)

TORTRICES.

Tortrix rosana L. Strangford; Rostrevor, W.F.J. (137.)

T. paleana Hb. Kirkeubbin; Belfast, C.W.W. (138.)

T. ribeana Hb. Killard, Downpatrick; Rostrevor, W.F.J. (137.)

T. costana Fabr. Kilmore (Lurgan). (137.)

T. heparana Schiff. Strangford, Finnebrogue. (137.)

T. podana Scop. Rostrevor, W.F.J. (137.)

T. viburnana Fb. Donard. (138.)

T. viridana L. Rostrevor. (138.)

T. ministrana L. Rostrevor. (138.)

T. forsterana Fb. Strangford; Rostrevor, W.F.J. (138.)

T. xylosteana L. Belfast, C.W.W. (137.)

T. unifasciana Dup. Belfast, C.W. (137.)

Peronea sponsana Fb. Strangford. (138.)

P. variegana Schiff. Strangford, Killard, Tollymore. (138.)

P. ferrugana Tr. Strangford, Tollymore. (138.)

P. hastiana L. Kirkeubbin, Strangford, Tollymore. (138.)

P. schalleriana L. Strangford. (138.)

P. aspersana Hb. Strangford. (138.)

P. mixtana Hb. Belfast, C.W.W. (138.)

- Teras caudana** Fb. Belfast, Birchall. (139.)
- T. contaminana** Hb. Strangford, Killyleagh; Ros-trevor, W.F.J. (139.)
- Dictyopteryx bergmanniana** L. Strangford; Dundrum, C.W.W. (139.)
- Argyrotoza conwayana** Fb. Strangford, Inch, Donard. (139.)
- Penthina pruniana** Hb. Strangford. (139.)
- P. betulætana** Haw. Holywood (Wilkinson). (139.)
- P. variegana** Hb. General. (139.)
- P. sauciana** Hb. Belfast, C.W.W. (139.)
- Pardia tripunctana** Fb. General. (139.)
- Orthotænia ericetana** Bent. Strangford. (140.)
- O. antiquana** Hb. Strangford, Kirkeubbin; Valentine's Glen, C.W.W.
- Sericoris littoralis** Curt. General. (139.)
- S. lacunana** Dup. General. (140.)
- Mixodia schulziana** Fb. Mourne Mountains. (140.)
- Cnephasia musculana** Hb. General. (140.)
- C. politana** Haw. Mourne Mountains. (140.)
- Sciaphila conspersana** Dougl. Killard, Strangford. (140.)
- S. hybridana** Hb. Killough; B.N., 1902. (140.)
- S. subjectana** Gn. Killard. (140.)
- S. chrysanthæana** Dup. Down, Wilkinson. (140.)
- S. virgaureana** Tr. Strangford. (140.)
- S. colquhounana** Sta. Ardglass. (140.)
- Sphaleroptera ictericana** Haw. Belfast, C.W.W. (140.)
- Capua favillaceana** Hb. Strangford. (140.)
- Clepsis rusticana** Tr. Belfast, C.W.W. (140.)
- Bactra lanceolana** Hb. General. (141.)
- Phoxopteryx lundana** Fb. General. (141.)
- P. uncana** Hb. Belfast, Bar. (141.)
- P. mitterpacheriana** Schiff. Belfast, Bar. (141.)
- Grapholitha nisella** Clerck. Strangford. (141.)
- G. nigromaculana** Haw. Loughbrickland; Mourne Mountains, C.W.W. (141.)
- G. subocellana** Don. Belfast, C.W.W. (141.)
- G. penkleriana** Fisch. Belfast, Bar. (141.)

- G. nævana** Hb. Belfast, Bar. (141.)
- Batodes angustiorana** Haw. Quoyle Bridge; Belfast, C.W.W. (141.)
- Pædisca bilunana** Haw. Belfast, C.W.W. (141.)
- P. corticana** Hb. Belfast, C.W.W.; Tollymore. (141.)
- Phæodes crenana** Hb. Kilelief.
- Ephippiphora similana** Hb. Belfast, Bar. (142.)
- E. pflugiana** Haw. Strangford. (142.)
- E. brunnichiana** Fröl. Tyrella, Strangford; Belfast, C.W.W. (142.)
- E. trigeminana** St. Killard; Belfast, C.W.W. (142.)
- Olindia ulmana** Hb. Donard Demesne, C.W.W. (142.)
- Semasia rufillana** Wilk. Benderg. (142.)
- S. wœberiana** Schiff. Donard; Belfast, Bar. (142.)
- Pamplusia mercuriana** Hb. Slieve Bingian, C.W.W. (142.)
- Retinia kuoliana** Schiff. Belfast, C.W.W. (142.)
- R. pinivorana** Zell. Holywood, Wilkinson. (142.)
- Pyrodes rheediella** Clerck. Holywood, Bar. (143.)
- Catoptria ulicetana** Haw. Common everywhere. (143.)
- C. cana** Haw. Strangford. (143.)
- C. fulvana** St. Strangford, Killard. (143.)
- C. scopoliana** Haw. Killard. (143.)
- Choreutes myllerana** Fb. Holywood, Bar. (143.)
- Symæthis oxyacanthella** L. Common everywhere. (143.)
- Eupœcilia dubitana** Hb. Belfast, C.W.W. (143.)
- E. atricapitana** St. Belfast, C.W.W. (143.)
- E. angustana** Hb. General. (143.)
- E. implicitana** H.S. Belfast, C.W.W. (144.)
- E. ciliella** Hb. Belfast, C.W.W. (144.)
- Xanthosetia zœgana** L. General. (144.)
- X. hamana** L. General. (144.)
- Argyrolepia hartmanniana** Clerck. Donard, Tollymore. (144.)
- A. cnicana** Dbl. Belfast, C.W.W. (144.)
- Conchylis straminea** Haw. Strangford; Belfast, C.W.W. (144.)
- Aphelia osseana** Scop. Killard; Belfast, C.W.W. (144.)

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PROCEEDINGS

... AND ...

ANNUAL REPORTS

PRESENTED
20 JUN 1935

SERIES II.
VOL. IX.



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PRICE OF EXTRA COPIES TO MEMBERS 2/-.

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PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1933
(SEVENTIETH YEAR)

SERIES II.
VOLUME IX.



PART V.
1932-33

EDITOR:
W. M. CRAWFORD, F.R.E.S., F.Z.S.

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PROCEEDINGS.

SUMMER SESSION.

MUCKAMORE ABBEY AND BOGHEAD SOUTERRAIN.

Date—Saturday, 14th May, 1932. Conductors—H. French and J. Skillen. Number present, 87.

At 2-30 p.m. the party left the Museum Building, College Square North, in two buses and several private cars belonging to the members. The excursion was favoured with glorious May weather.

Mrs. Thompson, Muckamore Abbey, had kindly invited the party up to her house, and here from the doorstep she read from original manuscript some of the history of the old abbey as well as of the prehistoric burial mound situated in her beautiful grounds, the members meantime being grouped about on the lawn. Afterwards Mrs. Thompson conducted the Club members to an inspection of the burial mound. Proceeding to the road, what was left of the abbey building was examined, this consisting of a fragment of wall containing a window, the modern road had cut right across the building, thereby destroying it. Most of the site is buried under the gardens of Muckamore Abbey House, and the ancient friars' graveyard is enclosed in the grounds.

Leaving the ruins of the old abbey, way was made along the course of the Sixmilewater, whose banks were carpeted with the white blaze of stitchwort, the lovely blue of the wild hyacinth, the yellow of the primrose, and the opening flowers of meadow avens, and overhead was the delicate greenery of the trees in May, especially the larch, the lime, and the beech. Boghead was soon reached, nestling on a bluff, high above the river. On this farm is a souterrain—one of the most interesting in Co. Antrim, as it is two-storied, a very unusual feature. It is also easy of access, many of the party descending into it; indeed, it was hard to call them away by the Secretary's whistle for tea in Antrim.

A very excellent tea, which had been earned by the walk, was served up in Hall's Hotel, Antrim, and Mr. French, one of the conductors, explored the town with the party, explaining the historic events that took place there, especially those associated with the rebellion of '98, not omitting a visit to Pogue's Entry, of "My Lady of the Chimney Corner" fame.

Mounting the conveyances, the road was taken for Rathmore, where a talk was given, by the Hon. Secretary, on this ancient and Royal site, after which home was reached in good time.

GLENANN AND SLIEVE-AN-ORRA.

Date—Saturday, 21st May, 1932. Conductor—J. Skillen. Number present, 55.

The members left the Old Museum, College Square North, at 9-30 a.m., and taking the inland road to Larne proceeded by the coast road to the first stopping-place at Red Bay Castle. At this ruin the conductor told its history—how it was built by James MacDonnell in 1561, its history being a short one, as it was completely destroyed, along with the town at Red Bay, by Shane O'Neill in 1565. Close by in one of the natural caves in the sandstone rock was formerly a hedge school, where Dr. MacDonnell, of Belfast and the Glynns, received his first schooling.

A short stop was made at Cushendall, where the party was joined by Mr. Thomas Greer, J.P., Honorary Secretary, Tyrone Field Club, and Mr. H. L. Glasgow, of Cookstown, and the ascent of Glenann, "the glen of the fuchsias," was then commenced, and the ancient remain known as Ossian's Grave visited. This is an insignificant monument, as such monuments go, for so imposing a name, being a crescent of standing stones with a kistvaen at the crown of the half circle. To the company J. Skillen gave a short talk on Ossian, remarking that the grave being a Bronze Age burial had nothing to do with this poet, who was one of the semi-mythological names in Irish history.

Leaving that place the ascent of Orra Mountain opened up what is one of the finest views in Ulster, as it is the highest motorable road, being about 1,100 feet above sea level. On the slope of Slieve Orra are the cairn tombs of Hugh M'Phelim O'Neill and his servant,

Most of the members of the party proceeded up the mountain-side in search of these cairns, which were reached after a most arduous walk of about a mile over quagmires and moss hags, to the detriment of nether garments and footwear. The graves when reached were found to be shapeless cairns of insignificant appearance and very difficult to locate amongst the heathery knowes scattered over the mountainside.

In a short time Loughguile (the lake of brightness) was reached, permission to visit it having been granted by Mr. C. G. Macartney, D.L., the proprietor. Here Dr. Alex. D'Evelyn, J.P., an old member of the Field Club, was in waiting, and along with Mrs. Macartney accompanied the party to the ruined castle of Lissanoure (the fort of gold).

Lissanoure was the birthplace of Lord Macartney, our first Ambassador to China.

The next stop was at Cloughmills to visit the holy well, known as Tubberdoney (Sunday well), where pilgrimages were made in former times to effect cures. Recently the well has been dressed in a framework of concrete and its rusticity, perhaps its virtues, destroyed. From here it was a short run to Clough Castle, a motte and bailey castle of the Normans. The last visit of the day was to the fort of Dundermot under the guidance of Dr. D'Evelyn. Tea was served in Ballymena and Belfast reached at a reasonable hour, thus terminating a most interesting day enjoyed in perfect weather.

LAGAN RIVER AND NEW FORGE.

Date—Tuesday evening, 24th May, 1932. Conductors—Professor Gregg Wilson and J. A. S. Stendall. Number present, 90.

A large party of seniors and juniors met the conductors at Deramore Drive for a working excursion along the banks of the Lagan. Many of the members came with collecting material, from the humble jam pot to the more elaborate scientific apparatus. Pond life and mosquito larvae were the chief objects to be investigated, and at Leister's dam Professor Gregg Wilson gave a talk on mosquitoes, describing their various forms, and how they are to be identified and how destroyed. He specially referred to the malaria-carrying mosquito, which was becoming common, and might in the future be a serious menace to public health. Several larvae of this species were captured, indicating their comparative frequency.

Leister's dam was one of the early reservoirs of Belfast water supply. It was kept filled by water pumped from the Lagan, the pump being a large wheel of the treadmill type worked by men, their pay being three-halfpence per hour. From Leister's dam to Basin Lane reservoir (Bankmore Street) the water flowed by gravity in an open conduit.

Leaving Leister's dam the party proceeded along the canal bank, each after their particular nature study.

Mr. Stendall exhibited a viper—an alien, of course—which had been found a few evenings previously on the Castlereagh Hills. The party continued along the canal until New Forge was reached, and separated at the tram terminus, Malone Road, after an instructive and enjoyable evening.

LOUGH FEA AND CREGGAN.

Date—Saturday, 11th June, 1932. Conductors—Thomas Greer, J. J. Hartley and J. Skillen.

The fourth excursion of the summer session was held on Saturday, 11th June, 1932, when a large party left the Old Museum for Lough Fea and Draperstown, the conductors being Thomas Greer, J.P.; J. J. Hartley, M.Sc.; and Joseph Skillen, the Honorary Secretary.

The morning was gloriously fine, and the early promise was maintained all day. After a drive through the orchard district of Armagh, which was looking its best in the leafy month of June, Cookstown was reached. Here the party was joined by the Tyrone Field Club, and thus augmented proceeded to Lough Fea, stopping on the way at Aine's Well.

Around about are other places called after the goddess Aine, such as Lissan, showing the persistence of tradition over centuries of time. A quarter of a mile farther on a quarry was visited to see the junction of Slieve Gallion granite and metamorphic rock. There Mr. Hartley gave the first of several talks on the geology of Tyrone. Shortly after, Lough Fea was reached and luncheon enjoyed on the shores of this lovely mountain tarn.

Leaving Lough Fea the drive along the road gave a panoramic view of the valley in which the lake lies. Behind is the hill of Carnanbane, a spur of Slieve Gallion, 825 feet high, at the foot of which is Lough-na-muc, now almost drained away. Here the Ordnance Survey reported in 1833

a very large heap of stones (a long barrow?) over the grave of Callan, the chief from whom the mountain got its name.

In this neighbourhood several dolmens were examined, these remains having been exposed by the cutting of turf in the bog in which they are situated. As usual, they have been defaced by treasure hunters. Leaving these high moorlands and descending into the valley, Mr. George Barnett's home at Sixtowns was reached and his wonderful collection of geological specimens, collected in the neighbourhood, examined with great interest.

The next stop was at Ballynascreen Old Church, which is now a ruin, so called as it was the church of the screen or library, where the books of nine surrounding churches were kept. Then the conveyances were mounted once more for Draperstown, where an excellent tea was much enjoyed, appetites having been sharpened by the mountain air.

After tea a business meeting of the Club was held in the open under a spreading chestnut tree, there being no room in the hotel large enough to hold the party. J. A. S. Stendall, Past President, presided, and welcomed the members of the Tyrone Field Club to the first joint excursion, expressing the hope that it would be the precursor of many. Mr. Bingham, president of the Tyrone Club, having voiced the pleasure of his members at meeting those of Belfast, the meeting terminated with thanks to Messrs. Kempston and Barnett for their help during the day and the election of some members to the Junior Division of the Club.

The journey home was by the north side of Lough Neagh through Toomebridge, and Belfast was reached after a most interesting and instructive excursion.

BARNEY'S POINT, ISLAND MAGEE.

Date—Tuesday evening, 21st June, 1932. Conductor—A. M'I. Cleland.
Number present, 20.

The party travelled by train to Whitehead and thence by N.C. bus. The weather was at its best, with beautiful evening light over Larne Lough and its background of hills. As the tide was low the members were able to examine all the well known exposures of Liassic beds to be seen at Barney's Point, and though nothing special in the way of fossils was found all the members agreed that the evening was a most enjoyable one.

DUNSEVERICK DISTRICT.

Date—25th June, 1932. Conductors—Rev. E. M. Gumley, and A. Albert Campbell. Number present, 55.

Leaving Belfast at 9-30 a.m. the party travelled by motor bus and private cars to the ancient territory of Dalriada, *via* Ballynure, Larne, and the Coast Road. At Ballycastle Mr. Gumley took charge.

The first halt was at a rather indeterminate stone circle in the townland of Curramoney. The outer portions of what was probably an extensive ancient monument have evidently been removed in the course of farming operations. The fine dolmen at Mount Druid, close by Ballintoy Rectory, was visited, and then the party went on to the ring fort above Whitepark Bay, in which there is a souterrain somewhat difficult of access. Mr. T. W. Sefton, who crept in for some distance, reported that it seemed to be exceptionally well constructed.

Proceeding to Dunseverick the Route Club joined the party, and the picturesque ruins of the castle were examined. Mr. Gumley pointed out that it had been a stronghold of the O'Cahans, a branch of the Kind-Owen. In 1641, its owner, Gilladuff O'Cahan, was taken prisoner by General Monroe, who destroyed the building. According to tradition, the first fortress on the site was founded by Severic, the son of Eberic, in 336 B.C. He was afterwards slain by the Fomorians or sea pirates. On the castle rock is a well which Monroe's soldiers filled up, but it is still discernible. Here, it is said, St. Patrick baptised (among others) St. Olcan of Armoy.

A visit to "bone-cave" at Milltown Bay, where a member of the Route Club, who had been excavating it, gave an account of his finds, brought the programme to an end.

After tea at the Antrim Arms Hotel, Ballycastle, the return journey was made *via* Armoy and Ballymena, and Belfast reached at 9-30 p.m.

GLASDRUMMAN AND KILKEEL.

Date—2nd July, 1932. Conductor—A. M'I. Cleland. Number present, 45.

A fully loaded bus, followed by several private cars, left the Old Museum, College Square North, promptly at 2-0 p.m., en route for Glasdrumman and Kilkeel. At Glasdrumman the well known double dyke of Basalt and Eurite through Silurian slate rock was thoroughly examined, the lowness of the tide rendering this quite easy.

Up to leaving Glasdrumman the weather had been all that could be desired, but at 5-0 p.m. heavy rain began and, though the journey was continued as far as Kilkeel, the rest of the programme was abandoned as soon as the latter place was reached, and the members turned about and made, with all speed, for Newcastle station, where a very welcome tea was provided by the County Down Railway Co.

DUMFRIES AND NEIGHBOURHOOD.

Date—8th to 13th July, 1932. Conductor—A. M'I. Cleland. Number present, 28.

The members left Belfast on Friday evening, travelling to Dumfries by Larne and Stranraer. The crossing was excellent, and the stationmaster at Stranraer kindly arranged for a half section of a coach, which was a great comfort in a crowded train, and all were safely housed in the County Hotel, Dumfries, soon after midnight.

On Saturday, 9th, a start was made promptly at 10 a.m., the guides for the day (Mr. R. C. Reid and Mr. H. Truckle) accompanying the party. The first halt was at Lincluden, where Mr. Reid gave an excellent address on the history and architectural features of the Abbey. Next a brief halt was made at the "Twelve Apostles," a circle of Standing Stones (11 in number) lying partly in a field of corn and partly in a pasture field. From here a visit was paid to Irongray Church, where in the churchyard stands the memorial to Helen Walker (the original of "Jeannie Deans," for which see Scott's "Heart of Midlothian.").

Passing on from there a move was made to the beautiful Martyrs' Memorial standing in its grove of shady trees. The Martyrs were Edward Gordon and Alexander M'Cubine, who perished in 1685. They were hanged by Grierson of Lagg and Captain Bruce.

A long run then took the party by Maxwelltown farm, crossing the Old Water river by Routen Bridge. From here the party had to face a long climb up hill, through pasture fields, a wood and a heathery moor. When well up on the moor it became apparent that the exact position of the Communion Stones, the objective, was not certain. These stones are in a hollow on the slopes of Skeoch Hill, and are a memorial to commemorate a large gathering of Covenanters, 3,000 in number, who met there in the summer of 1678.

When the route was finally picked up the Conductor decided, as time was getting on, that four of the more active members should go on and inspect and photograph the Stones, whilst the rest of the party got back to the bus by an easier route.

Then followed another beautiful ride to Thornhill, where a substantial lunch with tea was awaiting the members.

Loaded up again on the bus at 3.45 p.m., there was another delightful drive to Drumlanrig Castle, where the party found the housekeeper (Mrs. Kennedy) waiting for them. Here an hour and three-quarters were spent going in and out of the beautiful rooms and admiring the pictures and furnishings. Before leaving the Castle the Conductor presented Mrs. Kennedy with a souvenir of Belfast handkerchiefs. The next three-quarters of an hour was spent in wandering about the lovely grounds till 6.30 p.m., when the whistle sounded for the run back to Dumfries, which was reached promptly at 7.15.

SUNDAY, 10th JULY, 1932.

No special arrangements were made for this day. The weather was magnificent, a cool breeze with plenty of sunshine. Some of the members went to Carlisle, some to Moffatt, others to the Valley of the Nith, others again to Castle Douglas. One party went for a long tramp among the hills.

MONDAY, 11th JULY, 1932.

The first halt to-day was at Sweetheart Abbey. The Conductor read a short descriptive account of the history of the Abbey, written by Mr. M'Burnie, who was to have been Guide, but was prevented from coming at the last moment.

Then straight on to Dalbeattie, along the beautiful coast road and right through the town to the Craig Nair quarries of the Improved Road Constructions Co., where the manager, Mr. T. Craig, was waiting to receive the party. A visit was paid to two of the quarries, and in the second, some very peculiar forms of granite were found, which Mr. Craig said had not been noticed before. Some very good specimens were secured.

Then the members made their way back to Dalbeattie for lunch. After that, the Granite Cutting and Polishing Works were visited, where more specimens were obtained and many interesting processes seen.

On to the bus again and on to the beautiful Abbey of Dundrennan, where Rev. A. H. Christie was waiting. He gave an hour of his time, dealing with the Abbey in a very attractive fashion.

Dundrennan was left at 5-30 p.m. for the Moat of Urr, a fine drive with good views from the top of the Moat. Dumfries was reached in good time.

TUESDAY, 12th JULY, 1932.

The party were accompanied this day by Mr. G. W. Shirley, Librarian of the Dumfries Free Library, the first objective being Caerlavrock Castle, where Mr. Shirley gave an excellent address on the history and architectural features of the structure. Members then wandered all over the building, under the care of either Mr. Shirley or the official guide, all having plenty of time to examine and photograph the whole structure.

Assembled once more in the bus, the drive was continued to Ruthwell to inspect the Runic Cross housed in the church there. Next, to Annan, where a very good lunch was waiting the party at the Queensberry Arms Hotel. There was sufficient time in hand to enable members to see something of Annan, and even to make a stop at Ecclefechan and visit the birthplace of Carlyle. This was not in the programme and came as a pleasant surprise.

From here progress was made to Birrenswark, the bus being able to go right to the foot of the hill. Most of the party climbed up to the Roman Fort, and here the members had another excellent address from Mr. Shirley. On the slopes of Birrenswark (920 ft.), or Burnswark, are to be seen the remains of two Roman forts, neither of them completed.

The next stop was at Lockerbie, where an unexpected, but very welcome, cup of tea was served. Thus refreshed the return to Dumfries was resumed, in welcome sunshine and amidst beautiful scenery.

WEDNESDAY, 13th JULY, 1932.

Mrs. Shirley took charge of the party at 10 a.m. and conducted members around Dumfries, first visiting the old boundaries of the Meal Market. Here Mrs. Shirley gave a general description of the boundaries of old Dumfries and of the roads leading from it.

Next came a visit to the Tolbooth, in which Effie Deans stood her trial, and to many other places of interest.

A prolonged halt was made at the "Auld Brig" of Dumfries, the so-called Dervogilla's Bridge, and the Cross, set in the ground at Whitesands to mark the spot where Kirk was shot in March, 1685. Another long stay was made at Burns' House, and a minute examination made of the valuable and interesting relics it contains.

After lunch Mrs. Shirley again took charge of the party and with them paid a visit to Miss Jean Armour Burns Brown, great-grand-daughter of Robert Burns, who bears a strong likeness to the poet. Miss Brown sang three Burns' songs to her own accompaniment, and finished with "Dear Little Shamrock," for the benefit of the visitors. At the conclusion of the visit Mr. R. S. Lepper presented Miss Brown with a souvenir from Belfast of Irish linen handkerchiefs, accompanying the gift with some suitable words.

It was mentioned during the tour around the town that the lay-out was originally governed by the fact that at the old suspension bridge was a ford across the Nith, at that time the only way across to Galloway. This explains why the principal old streets all converge towards one point, *viz.*, the ford. Later the old Castle of Dumfries, now Castle Dykes, was built near this ford in order to command so important a place.

By 4-20 p.m. the party was loaded up in the bus, en route for the station. Tea was served on the train whilst speeding towards Stranraer, and after a good passage to Larne, Belfast was duly reached at 10-30 p.m.

BALLYNAHINCH AND DISTRICT.

Date—23rd July, 1932. Conductor—J. Skillen. Number present, over 60.

This (the ninth) excursion of the summer session left the Old Museum Building in bus and private cars, at 2 p.m.

Although the weather looked overcast, no rain fell during the afternoon until the conveyances were mounted for home at Anahilt churchyard.

The first stop was at Kilaney to visit an ancient graveyard on the farm of Mr. Robert Brown, and then the party proceeded to Lough Henney, close by. In this lake is a crannoge which was the residence of Toole MacPhelim MacIvor in the 17th century. Here were found during the last century a curious iron helmet now in the Museum, and a bronze cauldron. Up to the present this crannoge has not been systematically explored. There being no boat available, it was much regretted that a landing could not be made on the crannoge.

Proceeding from here, the next stop was at Glassdrummond, to examine a stone cashel. As is usual in forts of this sort, the walls are extremely thick, measuring in one place fifteen feet. It is in very good preservation and about one hundred feet in diameter.

Afterwards a visit was paid to Killygoney, a pre-historic graveyard. In this enclosure are stone-lined graves, mutilated as is usual, possibly by treasure hunters. There is also a stone circle of small dimensions and what looks like an altered dolmen or chambered cairn. Thanks are due to the farmer (Mr. James Burrows) on whose land these interesting remains are situated, for the care he is taking of them.

Passing through Ballynahinch to Magheradrool old church, a short time was spent in the graveyard surrounding this sad ruin. The whole place is very much overgrown, being a veritable jungle, shrubs and trees that evidently had been planted over graves now rioting in wild luxuriance.

At this stage of the excursion an adjournment was made to the Spa Hotel, where an excellent tea was served, some members of the party, both before and after tea, enjoying a drink of the sulphur or iron water, or a visit to the famous Maze close by. Then, mounting the conveyances, the party proceeded to Magheraknock Fort, which measures 100 paces across the top and is one of the largest in the county. The next stop was made to visit the grave of Betsy Gray and her lover, who were killed in the pursuit following the battle of Ballynahinch in 1798. The last visit of the evening was to Anahilt, a religious foundation of great antiquity, standing, like many other churches and burial places, on a rath.

This terminated a most interesting and instructive excursion.

BALLINDERRY AND GLENNAVY.

Date—6th August, 1932. Conductors—W. G. Burns and J. Skillen.

The party left the Museum Building, College Square North, at 2 o'clock. The route taken was by the Glen Road, a stop being made at Castle Robin to see this old motte and bailey, which was later the site of a Plantation building, as well as to view the delightful prospect of the Lagan Valley.

The next stop was at Greenmount, a double-fossed fort of the mound type, with a ruined souterrain at the base of the mound. This fort occupies a very high and commanding position.

Ballymote was next visited, this earthwork having a double fosse like Greenmount, but being of the flat type its fosses have suffered greatly by agricultural operations. Measurements were taken here and a sketch map made for the survey of antiquities, now being carried out by the Club.

The next objective was Crew Hill (Croab-Fulca, the branching tree), one of the most historic sites in the county. At the top of this hill under this sacred tree stood the inauguration stone of the kings of Dalriada, whose palace was at Rathmore. The Ulidians fought many battles in defence of this stone.

On reaching Glenavy tea was enjoyed, and a business meeting held, Mr. R. S. Lepper, Past-President, in the chair, when a member was elected to the Junior Division. Passing on to Ballinderry the famous Middle Church of Bishop Jeremy Taylor was visited, and this little gem of Jacobean art much admired. It was interesting to note the primitive method of lighting, each pew provided with its own candlestick, and the neatness and order of the church building, lieg-ate, and graveyard surrounding was favourably commented on. Leaving here the last call was at the old Church, now a ruin, on Portmore Lough, and which is built on an artificial island — possibly pre-historic — in the centre of a bog surrounded by a fosse and lined with double ditches. After lingering here for a while the excursion party mounted the conveyances for home, thus ending an interesting excursion and enjoyed in perfect weather.

BOYNE VALLEY.

Date—20th August, 1932. Conductor—J. Skillen. Number present, 80.

The party left the Museum Building, College Square North, in motor buses and private cars at 9 a.m.

After a very enjoyable drive through a country ripening to the harvest, Monasterboice, the first stopping-place, was reached in good time. Here, while the party enjoyed lunch, the conductor gave a talk on this ancient abbey.

This monastery was founded A.D. 524, and the most attractive objects of antiquity here, apart from the round tower, are the sculptured crosses, chief of which is that of Abbot Muredach (923 A.D.), a cast of which is in the Belfast Museum. It is inscribed, "A prayer for Muredach, by whom this cross was made." In magnitude, design, and execution the crosses of Monasterboice are not equalled in Britain, or

possibly in Europe. Some of the high crosses of Ireland are sepulchral, some memorial, like Muredach's Cross; in some cases they mark the bounds of the sanctuary, and teach a rude and illiterate people Scripture history from the panels on the cross, and they are useful to-day for ethnology, illustrating the clothing and weapons of the period. The round tower is 110 feet high and was much higher before it was struck by lightning. It is recorded that in A.D. 1097 the round tower, containing books and valuables, was burned, perhaps another black mark against the Danes.

Proceeding, Mellifont Abbey was soon reached. This was a house of the Cistercians, founded by O'Carrol, Prince of Oriel, Oriel comprising the present Counties of Armagh, Monaghan, and Louth, in A.D. 1142. This was ten years after the foundation of Fountains in Yorkshire, and doubtless Mellifont rivalled the former in splendour; but whereas Fountains is splendid even in ruin, Mellifont is little better than a shapeless cairn.

The next stop was at Slane, where the conductor gave a talk on the history and architecture of the ancient monastery there; also pointing out that it was here that St. Patrick lit the Paschal fire which confounded the Druids on Tara.

Leaving Slane the conveyances were mounted for New Grange, the Royal Cemetery of Brugh na Boinne. Most of the party penetrated into the chamber of this mound to see the curious carvings of the stones and the sarcophagus. After a pleasant drive along the banks of the Boyne, passing the site of the famous battle, Drogheda was reached.

During tea a severe thunderstorm of tropical violence broke out, but the members could laugh at the elements, being now safely under cover. The excursion was completed in good weather and home reached at a reasonable hour, considering the distance covered.

HARE'S GAP AND DIAMOND ROCKS.

Date—3rd September, 1932. Conductor—A. M'I. Cleland. Number present, 37.

The members were favoured with exceptionally good weather. Beyond a couple of showers the conditions were perfect, sunlight and shadow showing the Mourne Mountains at their best, culminating in a magnificent sunset. On reaching Trassey Bridge the party took lunch, and at 12-30 set off for the long and arduous climb to the Hare's

Gap, enjoying ever-increasing and expanding views of the district. From the Gap a further stiff climb of 300 feet brought them to the Diamond Rocks, where everyone at once began to search for the characteristic minerals to be found there. In this they were very successful and a number of topazes and beryls quickly found, one member getting a particularly fine example of beryl. On returning to Newcastle tea was served in the refreshment room of the railway station, and by 6-30 the party were on their return journey to Belfast, *via* Downpatrick, Killyleagh, and Saintfield, Belfast being reached at 8-30 p.m. After tea, a junior member was elected, and the conductor gave a short address on the geology of the Mourne and the Diamond Rocks.

SILENT VALLEY.

Date—17th September, 1932. Conductors—The President (Professor J. K. Charlesworth) and J. Skillen. Number present, 154.

One of the largest excursions in the history of the Field Club was held on Saturday, 17th September, 1932, when the party left the Museum Building in four buses and a number of private cars for the Silent Valley.

On arriving there, Mr. M'Ildowie, the chief engineer, was in waiting and accompanied the members to the top of the reservoir, and after a short stay here to enjoy the view of this peerless valley, a return was made to the valve house and overflow, where Mr. M'Ildowie gave a talk on the construction of the great embankment and the engineering difficulties so successfully overcome. The reservoir is ensconced amid the towering heights of Slieve-nagalagh (1,450 feet), Slieve Bernagh (2,394 feet), and Slieve Bignian (2,449 feet). It has a capacity of 3,000 million gallons, and is an index of the progress of Belfast in recent times.

At this point Professor Charlesworth also gave a talk on the formation of the Mourne and their great gorges, saying that perhaps half a million years ago a great sheet of ice lay spread all over the country, only mountain tops like Slieve Bernagh projecting like islands. With the coming of milder temperatures the ice retreated, leaving moraines, still visible in the valley.

Before leaving, the President, on behalf of the Club, thanked the Water Commissioners for giving permission to visit the works, and also Mr. M'Ildowie for his kind assistance.

At the Seacliff Gardens, Kilkeel, tea was served on the spacious lawn.

HILLSBOROUGH.

Date—8th October, 1932. Conductors—E. N. Carrothers, H. Cairns and A. E. Muskett.

Members left the Old Museum Building in motor coaches at 2 p.m. In the Hillsborough Castle woods a Fungus Foray took place, for the members so minded. Others visited the Agricultural Research Institute of Northern Ireland, the farm of which covers an area of approximately 500 acres of the Large Park, formerly the home farm of the Marquises of Downshire. The work of the Institute was kindly described by Professor Rae, and that of the Poultry Research Station, which was also inspected, by Mr. J. H. Prentice.

CONFERENCE OF FIELD CLUBS AT BALYCASTLE.

A conference of Naturalists' Field Clubs was held at Corrymeela, Ballycastle, from 1st October, 1932, when delegates attended from Belfast and from Londonderry, Limavady, Route, and Tyrone affiliated Clubs. This meeting was held to discuss the question of co-ordination between the various Clubs and to arrange for mutual assistance in their work. The attendance represented a senior membership of about eleven to twelve hundred naturalists. Professor Charlesworth, President of the Belfast Club, was in charge of the proceedings.

Papers and addresses were given by Dr. Praeger, Rev. E. M. Gumley, Wm. D. Cousins, and long and interesting discussions followed, those taking part being C. W. Gordon and Wm. Crawford, of Derry Club; Thomas Greer and H. L. Glasgow, Tyrone Club; and others.

An all-day excursion was from Ballycastle to Murlough Bay, over Fair Head, and an evening excursion to Whitepark Bay. Professor Charlesworth, who conducted on both occasions, gave most interesting talks on the geology of the district.

A resolution was passed that the next conference be held in the Portrush district, and a joint week-end excursion in May, to the Mourne—Newcastle or Rostrevor to be the headquarters.

The arrangements were in the hands of the Hon. Treasurer (A. H. Davison) and the Hon. Secretary (Joseph Skillen).

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session began with a Conversazione held in the Assembly* Hall, Fisherwick Place, on Tuesday, 18th October, 1932, at which there was a very large attendance of members and friends. Tea was served from 6-30 p.m.

The exhibits included:—

BOTANY.—J. A. S. Stendall, Scottish Primrose *Primula scotica*, Orkney Islands; Municipal Museum, series of models illustrating life histories of a Moss and a Liverwort; D. J. Carpenter, Jumping Beans and other interesting fruits; Dr. Adelaide G. Davin, enemies of Flax and Linen; Captain C. D. Chase, some European Flowers; Rev. W. R. Megaw, Peat Mosses, British and Continental.

GEOLOGY.—Robert Bell, Carboniferous fish remains; A. M'I. Cleland, crystals in drusy granite, Mourne Mountains; concretionary magnesium limestone, Sunderland; Dal-beattie granite; specimens from bone bed, near Ludlow; heat action on flints; Municipal Museum, portion of tusk and tooth of mammoth, *Elephas primigenius*, from Thames gravels; Miss Nora Fisher, Holocene marine mollusca; Queen's University, Geological map of Switzerland; aeroplane views of Swiss glaciers, &c.; geological specimens; W. G. Burns, shells from Lagan lock dredgings; A. H. Davison, some geological curiosities.

ZOOLOGY.—J. A. S. Stendall, common bittern, *Botaurus stellaris* (L.) in hiding; Dr. R. H. Hunter, demonstration of the form and structure of the human brain; Dr. H. P. T. Rhoder, poisonous centipede, N. Rhodesia; W. M. Crawford, butterflies and beetles; Miss Winifred M. A. Brooke, drawings of insects of economic interest, and sketches of insect eggs and their hatching; R. J. Welch, land and marine shells which bore into rocks; land and freshwater shells used for food.

ARCHAEOLOGY.—Thomas J. Johnston, collection of stone implements found recently at Dunfanaghy; J. A. S. Stendall, model of old Irish water wheel; Alexander Pringle, card-index of the 600 most interesting antiquarian objects found in Northern Ireland; Walter Gracey and Dr. John

Stewart, selection of Bann Valley axes and flint implements; R. J. Welch, very rude types of flint implements from Antrim river beds and gravels; Dr. Alex. D'Evelyn, Late Palaeolithic or Solutrean type of flints from the River Bann; gold-beaters' hammer from Dungonnell; bronze sword from Skettrick Island, County Down; bronze pins from Horn Head sandhills; A. H. Davison, objects from Swanscombe, Ipswich, Glastonbury, and the Mendips.

PHOTOGRAPHY.—A. M'I. Cleland, photographs and map of Antonine Wall, Falkirk; Miss M. Gaffikin, Survey of Antiquities exhibit; Miss M. W. Rea, photos (stereoscopic) taken 70 years ago illustrating life and scenery near Ottawa, Canada.

MISCELLANEOUS. — A. M'I. Cleland, Charlesworth-Cleland geyser fountain, water-flask chromo ad, the making of gun flints; W. E. J. Savage, replica of the oldest known Irish harp, now in Trinity College, Dublin; Dr. H. P. T. Rhoder, two albums of photographs illustrating wild life in N. Rhodesia; A. V. Pringle, jun., meccano model of a flax roving frame; W. Erskine Mayne, display of scientific books relating to the activities of the Club.

JUNIOR DIVISION EXHIBITS.—Educational series of flint implements and flakes, Angus Macdonald; Collection of shells, seaweeds, and antiquarian photographs, Noel Gregg; Common shells, sketches, and models of prehistoric animals, Sam Kernaghan; Wasps' nest, H. B. Orr; Mammals' and birds' skulls, John Stewart; Emperor Moth's cocoon, chaffinches' nests, Sarah Stewart; Pressed leaves, wasps' nests, and fungi from garden, Margaret Downer; Insects, Felicity Bolton; Collections Irish-derived place names, Marjorie Cleeland, Felicity Bolton; Living zoological and botanical specimens, shown by numerous Junior Members; Exhibits by Friends' School, Lisburn, Natural History Society-chart of bird song, nests of sea birds, kestrel, sparrow hawk, and barn owl, J. A. Benington, Hon. Secretary; Moths and butterflies, Margaret Lamb, S. Harding, and H. Monteith; Nests of peewit, snipe, and wild duck, E. Bailey; Models of wild fruits, Prissie Tyler and Maureen Allen; Models of fungi, M. Clarke and C. D. Nodder; Nature diary, Mary Redmond; Nature drawings, Ethel Swain; Leaves, Gwen Poole and Muriel Harding.

The Business Meeting began at 8-45, when the President (Professor J. K. Charlesworth), amid general applause, presented the Club Commemoration Medal to J. A. S. Stendall.

Prizes awarded for conversazione exhibits were then presented by the President to Junior Members as follows:—

Best living botanical exhibit—1, Felicity Bolton; 2, Beatrice Searle; certificates of merit, Hazel Martin, Margaret Downer, Margaret Hanna, and Mary Glendinning.

Best living zoological exhibit—1, George Burns; 2, A. G. Searle.

Best exhibit of general natural history interest — 1, Margaret Downer; 2, Sam Kernaghan; certificates of merit, John Stewart, H. B. Orr, Noel Gregg, Michael Clarke, and C. D. Nodder.

Twenty-five new members and ten Junior Members were elected, while Dr. Lloyd Praeger, President of the Royal Irish Academy, and Joseph Skillen, the Hon. Secretary of the Club, were elected Hon. members. George Barnett, Sixtowns, was made a Corresponding member.

The evening concluded with a lantern display of slides taken during the past season's excursions.

THE CHANGES IN THE CLIMATE AND LIFE OF EUROPE SINCE THE ICE AGE.

The first ordinary meeting of the Winter Session was held in the Old Museum, College Square North, on Tuesday, 15th November, 1932, at 8 p.m., when the presidential address was delivered to a very large audience by Professor J. K. Charlesworth, D.Sc., M.R.I.A.

During the Ice Age all North-West Europe was buried beneath a vast ice-sheet, said Professor Charlesworth. The lands to the south in Central Europe were covered with a frozen tundra of Arctic plants, constituting the so-called Dryas Flora, over which roamed such Arctic animals as the reindeer, musk-ox, glutton, and the Arctic fox, and the extinct mammoth and woolly rhinoceros. Their remains had been found as far south as the Pyrenees and North Spain, and even in Southern Italy.

The streams issuing from the ice-sheet during its retreat laid down their muds in the adjacent seas. Those muds were beautifully laminated, the finer layers representing the deposition of the cold winter season of very little melting, the somewhat thicker layers the coarser and more abundant sediments of the warmer summers. These laminated layers or "varves" were disposed like slates on a house roof, newer "varves" coming on in the succession as they were traced to the region whence the ice was proceeding. The "varves," therefore, served as a basis of

chronology for the time that has elapsed since the ice retreated, and by means of this the various events in the post-glacial history of Europe could be dated.

The ice-sheet, by its weight, pressed down the underlying crust of the earth and locked up within its mass enough waters of the world ocean to lower the surface of the sea by about thirty fathoms. When the ice melted and retreated, the waters submerged those parts of the glaciated regions which, on account of the lag in the response of the crust to the removal of the ice-load, still remained low. This cold sea invaded the Baltic region, where it is known as the Yoldia Sea, after a cold mollusc which was now found in Spitzbergen waters. It also invaded the coastal region of Scotland, as in the Clyde estuary, and formed the 100-foot beach of that country.

The steady uplift of Scandinavia and the Baltic, due to the removal of the ice-load, caused the replacement of the marine Yoldia Sea by a fresh-water lake, called the Ancylus Lake, after its freshwater shell, *Ancylus fluviatilis*. This lake was of the same age, 7,000 to 9,000 years ago, as the submerged forest around the Irish coasts, as under the head of Belfast Lough, and the last land connection of England with the Continent of Europe..

The widespread submergence of the succeeding period, the Littorina Sea of the Baltic, severed Ireland from Great Britain, forming the straits of Dover. It is represented in Northern Ireland by the so-called 25-foot beach.

The uplift of Scandinavia converted the waters of the previously submerged part into freshwater lakes. The marine species which inhabited the gradually rising hollows either wandered out into the sea or became extinct, though a few persisted, with important modifications, in the altered conditions. These modified species characterised the so-called relic lakes of North-West Europe. The pollen and freshwater shrimp (*Mysis relicta*) of Lough Neagh may have had a similar origin.

With the rise of the temperature at the close of the Glacial Period the cold species retreated. The marine mollusca went into the deeper seas and loughs, as in the Mediterranean, Baltic, and White Seas, and the fiords of Norway and Lough Fyne in Scotland. The freshwater forms went into the deeper parts of the lakes, such as the great lakes of Switzerland, or into the cold, forming mountain streams, or into caves. The Arctic and Alpine plants which had mingled on the great plains of Central Europe wandered into the cold North or took to the hills, where, with the

colder air and soils, they survived as the "Alpines" of most mountain groups of North-West Europe.

The trees re-immigrated very slowly and in definite order, known as the Steenstrup series, after the Dane who first recognised the succession. Birch, fir, oak, and beech followed each other in the re-colonisation of Europe. The time of immigration of the oak forest coincided with a period when the mean air temperature of Europe was higher than now. During this post-glacial climate optimum, which was about the beginning of the Littorina period, the trees extended into greater altitudes and higher latitudes, as seen, for example, in the West of Ireland. The marine shells also spread farther north; marine species now living on the south coast of Ireland and still farther south were found in the 25-foot beach of North-East Ireland, as in the estuarine clays underneath Belfast.

The climatic worsening which took place, almost catastrophically, about 800-700 B.C. drove the warmer marine fauna southwards, lowered the tree line by about 1,200 feet, and submerged the pre-existing forests by the peats of a colder and moister climate.

At the close, those congratulating the President, speaking to the address, or asking questions, were J. Skillen, R. J. Welch, J. A. S. Stendall, C. S. Bailey, A. H. Davison, S. Deans and Miss Sayers.

LUMINOSITY IN ANIMALS.

The second ordinary meeting of the Winter Session took place in the Old Museum, on Tuesday, 6th December, 1932, at 8 p.m., the President (Professor J. K. Charlesworth) being in the chair. Mr. J. S. Loughridge, B.Sc., M.D., delivered a lecture on above subject to an appreciative audience.

Mr. Loughridge opened his address by a reference to phosphorescence, which, he said, was the light given off by certain substances after being exposed to light rays, ultra-violet rays, &c. This he illustrated by placing various liquids in front of the light from the lantern which was being used to illustrate the lecture, and in the darkened room the glow from the tubes, after being removed out of the light ray, could clearly be seen.

Animal light, he pointed out, was one of the forms of "cold light." He described the physical nature of animal light, the structure of luminous organs, the chemistry of light production, and the distribution of luminosity throughout the animal kingdom.

An American firefly that glows red and green and a deep-sea squid that glows red and two shades of blue were among the examples quoted by Mr. Loughridge.

At the close the President, Mrs. Nodder, R. J. Welch, A. H. Davison, R. S. Lepper, J. A. S. Stendall, G. C. Reilly, C. R. Nodder and Miss Kevin all put questions, or spoke to the paper.

INSECT SOCIETIES.

A meeting took place in the Old Museum, on Tuesday, 17th January, 1933, at 8 p.m., when Mr. G. Williams, M.Sc., delivered an address on the above subject. The President (Professor J. K. Charlesworth) was in the chair.

The great majority of insects lead solitary lives. A small proportion, however, have forsaken the solitary life and taken to living in communities. Various examples can be cited as illustrating different stages in the evolution of the social system, thus many insects never progress beyond a sub-social stage, others, however, are truly social and, in the highest types of insect community a social organisation is attained, which is analogous to that of man.

Ants and termites, although unrelated, show an extraordinary parallelism in their social developments. Each, although equipped with wings, takes on a terrestrial or sub-terrestrial existence. Both show a similar development of sterile castes along the two parallel lines of polymorphic workers and polymorphic soldiers. Both groups have acquired the similar habit of fungus cultivation along almost identical lines. Finally, both have succeeded in domesticating many other insects and, it can be said undoubtedly, that they are par excellence the exponents of all that can be achieved by instinctive acts.

Insect societies are immeasurably older than any human society, in fact when man's ancestors were in their earliest developments, the major groups of ants had already established their principal castes.

In conclusion, it may be said that among the social insects the community is virtually a vast proletariat of sterile workers. Individual aspirations, comfort and pleasure, find no place in such a hierarchy, but each individual labours with the utmost diligence and care for the welfare of the whole society.

At the close those asking questions or speaking to the paper were Col. F. H. Crawford, W. M. Crawford, J. A. S. Stendall, J. Skillen, A. H. Davison, Miss Brooke and Randal MacDonald.

BRITAIN IN THE BRONZE AGE.

A meeting of the Club was held in the Old Museum on Tuesday, 21st February, 1933, the President (Professor J. K. Charlesworth) in the chair, when Mr. E. E. Evans, M.A., F.S.A., delivered a lecture on the above subject.

The lecturer stressed the continuity of European civilization revealed by archaeological studies. The ground-work or pattern of Western Civilization was laid down in the second millennium B.C., and regional differentiation, culminating in the nation-states of post-Renaissance Europe, was already foreshadowed. An analysis of the material bases of early culture showed the importance of cultivation, animal-domestication, metal-working, weaving, carpentry, pottery-making, transport and settlement. Some effects of the later introduction of food-crops (e.g., the potato) were referred to in order to bring out the effects of Bronze Age crops and other elements of the early culture-complex in Britain. Education should teach us more about the ploughed fields on which we live and less about the battle-fields whereon we die. In the words of Fabre: "History knows the names of all the kings, but cannot tell us the origin of wheat."

After dealing with the beginnings of civilization dependent upon discoveries of this kind, the difficulties and the advantages of Early Britain as a home for it, were outlined; and its introduction into the British environment was illustrated by means of maps and lantern slides. The persistent division between east and west was related to fundamental differences in both physical conditions and in space-relationships. Broadly speaking the west stood out as a collection of upland regions of old infertile rocks, frequently isolated as islands or peninsulas, with heavy rainfall. Here agriculture was relatively difficult and pastoral life had always been predominant, and scattered settlements typical. Culturally the west stood out, from the first, as a region of survival and continuity, slowly absorbing external influences. The east, on the other hand, was a lowland with long estuaries facing the continent: a bridge of chalk almost connecting them, a region of young rocks, fertile soils and good agriculture. Here successive continental cultures had penetrated from the Bronze Age on.

The lecturer, restricting himself to the period from 2000 to 500 B.C., illustrated these points from the abundant remains of the Bronze Age in Ireland. Many of the industries represented were still alive to-day: in fact in nearly every case the "idea" was already there, and the

modern world is the logical projection of the past into the present. The art of the period was also dealt with, and the lecture concluded with illustrations of the persistent enrichment of British culture through the mingling of the ideas of the west and the material expression of the east.

Many features of British culture could be traced back to this duality of background; and in early times, as to-day, north-eastern Ireland illustrated, because of its environment and location, the concentrated juxtaposition of east and west.

At the end of the lecture questions were put, or remarks made, by Col. Berry, T. Johnson, W. G. Burns, R. S. Lepper and others.

BOTANIZING IN IRELAND.

At a meeting of the Club, held in the Old Museum on Tuesday, 7th March, 1933, at 8 p.m., the President (Prof. J. K. Charlesworth) in the chair, the lecturer on the subject given above was R. Ll. Praeger, D.Sc., President of the Royal Irish Academy. There was a very large attendance of members and friends.

From the point of view of the botanist Ireland possessed some points of special interest, said Dr. Praeger. These arose from its isolated position on the extreme western edge of a great land-mass, which had both enriched its flora by allowing it to receive immigrants from across the ocean on the west, and impoverished its flora by preventing it from receiving immigrants from the east.

Again, situated as it was on an unstable continental edge, it had experienced many periods of submergence and of emergence, with the result that the geology of Ireland, and consequently the surface and soils, was very varied, producing corresponding variations in the vegetation.

The nature of the flora and its distribution were then discussed. The characters of the old native vegetation, prior to the introduction of agriculture, and the great change produced by man's operations, were pointed out, Dr. Praeger explaining how woodlands had been destroyed to allow of grazing, and grass lands broken up for tillage.

The botanist in his search for the rarer members of the primitive flora had to concentrate on the comparatively small amount of ground remaining in its primitive condition, and the distribution and nature of these areas were discussed. They included woods, bogs, lakes, marshes, and mountains.

Stories were told illustrating the good and bad fortune which at times accompanied the field botanist. Dr.

Praeger observed that what might appear to be good luck was mostly the result of experience and of careful previous study of the district to be explored.

Hints were given how to secure the most interesting results by forethought and observation, the naming of plants found, and the collecting and preservation of plants which it was desired to keep for future naming or other purposes.

The lecturer held that while the general outline of the local flora and its distribution had been by now well worked out, there remained, and would always remain, plenty of interesting and pleasant work for the amateur botanist, provided he was willing to take trouble and to use to the full his powers of observation.

At the conclusion Rev. W. R. Megaw, A. H. Davison, C. R. Nodder and G. C. Reilly voiced the appreciation of the audience or asked questions, the lecturer giving replies to all questions put to him.

GREAT BIOLOGISTS.

A meeting of the Club was held in the Old Museum on Tuesday, 21st March, 1933, at 8 p.m., when Mr. Hugh Cairns, B.Sc., gave an address on above subject. In the unavoidable absence of the President, J. A. S. Stendall took the chair.

The lecturer touched on the life and work of the great Biologists beginning with Aristotle, Theophrastus and Ibn-al-Awam, continuing with Harvey, Linnaeus, Mendel, de Bary, Koch, Darwin and de Vries.

Portraits of those referred to were thrown on the screen by means of an Epidiascope, worked by Mr. Greeves.

SECTIONAL NIGHTS.

Three evening meetings of the Winter Session were devoted, one to each of the three sections, Geology, Botany and Archaeology.

Geology—3rd January, 1933.—Professor Gregg Wilson, D.Sc., M.R.I.A., in the chair.

The following short papers were read by A. M'I. Cleland:—

(i)—*The Effects of Heat on Flints.*

The speaker described certain experiments he had made with flints, by treating them for several hours to a soaking heat of 1,600 degs. F. The flints selected were of different varieties, grey, amber, purple, or red in colour.

The light grey flint came out almost pure white and was not much fractured. The colour of the amber flint

changed to a light purple, the flint itself being much fractured. The purple flint became whiter and was not greatly fractured. Two samples of red flint were treated and gave widely different results. The first was medium red and became almost white, with little fracture. The second was of a very dark red colour, which under heat treatment changed to a purplish amber tint and was so much fractured that most of the sample came out of the furnace like so much coarse sand or gravel.

Perhaps the most important point was that in all cases the flints were fractured, notwithstanding their colour. It was, therefore, difficult to understand how a large flint, when heated, should change its colour to a bright red and still retain its original shape.

(ii)—*Paramoudras and other Hollow Flints.*

The speaker gave the origin of the word "paramoudra," according to the "Oxford Dictionary," as an "Anglo-Irish corruption of Erse *peura-muireach* 'sea-pears,' from their shape and occurrence on the beach below chalk cliffs. It is a name given to large flints, pear-shaped, barrel-shaped, or cylindrical (sometimes 3ft. long and 1ft. thick), perforated with a central axial cavity, found standing erect in the chalk of the N.E. of Ireland (where the name is local) and of Norfolk (where known as *pot-stones*)."

He drew attention to the very fine paramoudra to be seen in the pathway leading to the Roman Catholic Church at Greencastle, Co. Antrim.

He then mentioned the probability that the axial cavities of all paramoudras found in the flint gravels, usually overlying the Antrim chalk, contained a mixture of gray clay and fragmentary flints, the original hard chalk cores having been removed by solution.

The speaker further recorded the fact that among the many hollow flints he had examined at Magheramorne quarries, Co. Antrim, he had never found one containing even a trace of chalk. A few of them revealed quartz crystals, but the great majority of the hollows in the flint were filled with a fine flour of pure silica.

A sample of this flour was submitted to Professor W. J. Sollas, of Oxford, who reported as follows:—

"The dust contains residuary fragments of flint as well as bits of sponge spicules transformed into quartz, tests of foraminifera as well, also converted into quartz and often much corroded; occasionally minute fragments of quartz

spherulites are to be seen, they are glassy clear, give good cross between Nichols and are optically positive."

(iii)—*An Interesting Rock Exposure at Whitehead.*

This exposure is to be seen in the railway cutting on the east side of the tunnel at Whitehead, Co. Antrim, and reveals a number of basaltic columns arranged in radiating fan shape. The original basalt had evidently flowed into a water-filled hollow in the chalk. Contact with the water had cooled the lower parts of the basalt quickly and caused it to assume an amorphous condition. The upper portion, cooling more slowly, had taken on a columnar structure. (See *I.N.J.*, vol. 4, p. 209).

The base of the hollow showed strongly marked stratified secondary chalk, a rock structure at one time to be seen at Magheramorne quarries, where it was found very finely developed. (See *I.N.J.*, vol. 3, p. 4).

J. A. S. Stendall, R. J. Welch, A. H. Davison and C. R. Nodder put questions, or spoke to the papers. There was a large attendance.

Botany—7th February, 1933.—Three short papers were read as follows:—

- (1)—"Botany for the Amateur," by A. E. Muskett, M.Sc., A.R.C.S.
- (2)—"The Flora of Spain compared with that of Ireland," by Captain C. D. Chase, M.C., M.A.
- (3)—"Mendelism," by Major G. O. Searle, B.Sc.

Archaeology—4th April, 1933.—Professor Gregg Wilson, D.Sc., M.R.I.A., in the chair.—Two short papers were read:—

- (1)—"Types of Prehistoric Sepulchral Pottery," by Miss M. Gaffikin.
- (2)—"Some 'Ifs' of Irish History," by J. Skillen.

Those speaking to the papers were J. A. S. Stendall, A. H. Davison, R. S. Lepper and G. E. Reilly.

ANNUAL MEETING.

The Annual Meeting was held in the Old Museum, College Square North, on Tuesday, 25th April, 1933, at 8 p.m., the President (Professor J. K. Charlesworth, D.Sc.) in the chair. The Reports which follow were all unanimously adopted:—

Twenty-three new members were elected on the proposal of J. Skillen, seconded by J. A. S. Stendall.

On the motion of R. S. Lepper, Rev. E. M. Gumley was elected Corresponding Member.

ANNUAL REPORT.

The Committee have pleasure in laying before the members their Seventieth Annual Report, which records continued prosperity.

During the year 43 new members were elected, 2 Juniors transferred to the Senior roll, 27 resignations were received, 5 died, and 20 were struck off the roll for non-payment of subscriptions. The membership now stands as follows:—7 Hon. Members, 3 Life Members, 6 Corresponding and 482 Ordinary Members, 498 in all. The total on the roll of the Junior Division is 210, making a grand total of 708. A reduction in membership of only 6 Seniors, your Committee think, very creditable in these depressing times.

Your Committee is pleased to report that the 4 affiliated Clubs are in a flourishing condition, and doing good work in their respective districts. They report a membership of 636 which, added to the numbers of the Belfast Club, make a grand total of Field Naturalists in Northern Ireland of 1,342.

Two new Hon. Members were elected during the year, *viz.*: Dr. Praeger and Joseph Skillen, and one Corresponding Member, George Barnett, Sixtowns, Draperstown.

During the past Autumn a conference of the Field Clubs was held at "Corrymeela," Ballycastle, which was most successful.

Your Committee held nine meetings, and the attendances were as follows:—

Miss Gaffikin	...	9	R. J. Welch	...	7
W. G. Burns	...	9	Prof. Gregg Wilson	...	6
A. A. Campbell	...	9	Rev. W. R. Megaw	...	6
A. M'I. Cleland	...	9	Robert Bell	...	6
W. M. Crawford	...	9	R. S. Lepper	...	6
J. A. S. Stendall	...	9	D. J. Carpenter	...	5
Wm. Sweeney	...	9	Mrs. Nodder	...	5
Jos. Skillen	...	9	Mr. J. S. Loughridge	...	5
C. R. Nodder	...	8	J. J. Hartley	...	4
A. H. Davison	...	7	James Orr	...	4
Miss N. Fisher	...	7	Captain Chase	...	2
Miss W. J. Sayers	...	7	C. E. Kerr	...	0
Professor Charlesworth	7				

We deeply regret to report the death of five members, whose names are appended to this report.

Again the Committee desire to return their best thanks to the donors of prizes for Junior exhibits at the conversazione.

It is regrettable that no entries were received for the competitions set for summer work. The givers of prizes are as follows:—The President (Professor Charlesworth), Captain C. D. Chase, A. Albert Campbell, A. M'I. Cleland, A. H. Davison and C. R. Nodder.

Our representative to the British Association this year was J. J. Hartley, M.Sc.

The summer programme was carried out in its entirety, and the accommodation provided at each excursion was fully taken up. The usual good fortune of the Club in respect to weather was experienced on almost every occasion.

The following is a list of the excursions:—

- May 14th, 1932, Muckamore and Boghead Souterrain (half day).**
- May 21st, Glenanne, Slieveanorra and Lisanoure Castle (whole day).**
- May 24th, River Lagan (evening).**
- June 11th, Lough Fea and Creggan (whole day).**
- June 21st, Barney's Point (evening).**
- June 25th, Dunseverick (whole day).**
- July 2nd, Glasdrumman and Kilkeel (half day).**
- 12th July Holidays, Dumfries (long excursion).**
- July 23rd, Ballinahinch and District (half day).**
- August 6th, Ballinderry and Glenavy (half day).**
- August 20th, Boyne Valley (whole day).**
- September 3rd, Hare's Gap and Diamond Rocks (whole day).**
- September 17th, Silent Valley (half day).**
- October 1st, Conference of Field Clubs, Corrymeela, Ballycastle (two days).**
- October 8th, Fungus Foray (half day).**

The Annual Conversazione to inaugurate the Winter Session was held on 18th October, in the Church House, Fisherwick Place. The exhibits were as diverse as they were interesting.

The lectures delivered during the winter half of the session were as follows:—

1932.

November 15—Presidential Address:

“The Changes in the Climate and Life of Europe Since the Ice Age.”

December 6—“Luminosity in Animals.”

J. S. LOUGHRIDGE, B.Sc., M.D., F.R.C.S.

1933.

- January 3—Short Geological Papers. A. M'I. CLELAND.
 „ 17—Insect Societies. G. WILLIAMS, M.SC.
 February 7—Short Botanical Papers. A. E. MUSKETT,
 M.SC., CAPT. C. D. CHASE, M.C., M.A.,
 MAJOR G. O. SEARLE, B.SC.
 „ 21—"Britain in the Bronze Age."
 E. E. EVANS, M.A.
 March 7—"Botanizing in Ireland."
 R. LL. PRAEGER, D.SC., P.R.I.A.
 „ 21—"Great Biologists."
 HUGH CAIRNS, M.SC., B.AGRI.
 April 4—Short Archaeological Papers. Miss M.
 GAFFIKIN, JOSEPH SKILLEN.

The meetings were all well attended and the papers read proved of high merit; they all evoked interesting discussions.

Finally the Committee desire to record their thanks to the Press for their reports of our meetings, and to the Societies who have given copies of their publications. Warmest thanks are also due to the following for kindness extended during the Summer excursions—Mr. Robert M'Namara, Ballynahinch; Rev. D. M'Evoy, P.P., Glenavy; and Mrs. Thompson, Muckamore Abbey.

JOSEPH SKILLEN, *Hon. Secretary.*

25th April, 1933.

OBITUARY.

W. C. Boyd, J.P.

Thomas Brown, J.P.

Miss E. Lowry.

Thomas O. Millar.

William Swanston, F.G.S. (Hon. Member).

HON. LIBRARIAN'S REPORT.

The Library work continues as usual. The exchanges are received and catalogued, and the work of trying to make up gaps in our sets continues, as well as the binding of completed volumes.

There are four new exchanges to report :—the Zoological Museum of the Berlin University, the Royal Museum of Natural History of Brussels, the Buteshire Natural History Society and the Leicester Literary and Philosophical Society.

The list of exchanges will be found at page 269.

W. M. CRAWFORD, *Hon. Librarian.*

REPORTS OF THE RECORDING SECRETARIES.

ARCHAEOLOGY.

LISTS AND SURVEYS.

The County Tyrone Sub-Committee of the Ancient Monuments Advisory Committee has sent in its report, recommending nearly sixty ancient monuments in that county for preservation. This report, having been adopted with but slight alteration by the Committee, has been submitted to the Government for sanction, and, if approved, for administrative action.

Of the Six Counties, Derry alone awaits the completion of its list, and for this much preliminary work has been done in the examination of structures and the collection of material.

Another Sub-Committee of the Advisory Committee has been formed with a view to the eventual making of an illustrated survey of interesting buildings of the 17th, 18th and early 19th centuries in Northern Ireland.

EXCAVATION AND REPAIR.

The repairing of the conventual buildings of Bun-na-mairge Friary, near Ballycastle, Co. Antrim, has been continued by the Government architects, special attention having been given to the rough barrel-shaped vaulting over the day room, which supported the simple earthen floor of the dormitory.

The tall modern walls and roof of the Antrim family mortuary chapel, which tended to dwarf the older walls of the Friary, have been lowered, by permission of the Earl. In making this alteration further interesting features of the old building have been exposed.

The Ministry have now taken over the Friary as an Ancient Monument, and appointed a caretaker for it. They have also recently taken charge of the remains of the old Franciscan Friary at Armagh.

On the initiative of H. C. Lawlor, the Ministry have secured for exhibition at Carrickfergus Castle, on loan from H.M. Office of Works, a collection of armour and weapons dating from the 16th to the early 19th century, in lieu of those formerly kept there, which cannot now be traced.

EXCAVATION.

A notable excavation of a Horned Cairn on Goward Hill, near Hilltown, Co. Down, has been made by Messrs. Oliver Davies, M.A., and E. E. Evans, M.A., F.S.A., of Queen's University Belfast, helped by Miss M. Gaffikin and others.

An important step forward has been taken by the Belfast Corporation in granting £50, through the Municipal Museum, for prehistoric excavation and research by experts. This grant has met with the cordial approval of Government.

Already a good beginning has been made on the clearing of two caves at Ballintoy, Co. Antrim, under the experienced guidance of Dr. J. Wilfrid Jackson, F.G.S., of Manchester Museum. The results of this work are awaited with interest.

An application from Dr. J. van Giffen, of Groningen University, to excavate the stone circle at Ballynoe, Co. Down, has been under consideration by the Advisory Committee, a Sub-Committee of which has suggested suitable conditions, should the request be granted by Government.

FINDS.

An interesting illustrated article by H. C. Lawlor, describing the antiquities recently found in the River Bann up to June, 1932, was published in *The Irish Naturalists' Journal*, vol. IV., no 4, p. 77, July, 1932.

At Killadroy, Beragh, Co. Tyrone, a fine sepulchral urn of "food vessel" type, with incised ornament, presumably of the later Bronze Age, with human bones, has been found in good condition in a stone-lined grave, and has been acquired by the Municipal Museum, Belfast.

R. S. LEPPER.

REPORT OF BOTANICAL SECTION.

The membership of the Botanical Section during the season numbered thirty-five. Excursions were held as follows:—

May 28.—Dundrum sandhills. On this occasion *Teesdalia nudicaulis* was found in flower on the sandhills not far from Murlough House. This is a new station for *Teesdalia*, although it is known to occur at Ballykinlar on the other side of the opening of Dundrum Bay.

June 14.—Tuesday evening. The greenhouses and new rock gardens in the Botanic Gardens, Belfast, were visited. The party are indebted to Mr. A. Graham for his interesting comments on the various plants examined.

August 16.—Tuesday evening. Squires Hill. In spite of heavy rain a small party walked over Squires Hill from

Ligoniel, via the Flush. *Pyrola media* was found in flower in its old station at the Flush. A brief search for *Habenaria albida* on Squires Hill, where it was seen in 1926, proved fruitless.

On the General Club Excursion on May 21st an interesting small orange fungus was found growing on tufts of wet moss on the slopes of Slieveanorra, not far from the Aldorcugh Burn and the "tomb of Hugh M'Phelim O'Neill." The fungus was identified by Carleton Rea as a typical form of *Humaria roumegueiri*, and is a new record for Ireland. A variety of the species has been recorded from England by Phillips.

C. R. NODDER,	}	Hon. Secretaries.
W. R. MEGAW,		

REPORT OF GEOLOGICAL SECTION.

Very little sectional work in Geology has to be recorded for the Session owing to an apparent lack of enthusiasm among the sectional members. An excursion was arranged for Saturday, 18th June, the objective being Carr's Glen, but as only the Sectional Secretaries put in an appearance the excursion was abandoned.

On the other hand four General Excursions, in which the objective was principally geological, were well attended.

The first of these took place on Tuesday evening, 21st June, when a party of 20 members visited the always attractive district of Barney's Point. Nothing new was obtained, but it was very refreshing to explore once again this well known exposure of Liassic strata, especially as the weather conditions were all that could be desired.

An equally successful expedition was made on Saturday, 2nd July, to the well known double dyke at Glasdrumman, which later was thoroughly examined and some good specimens obtained. A party of about 45 members attended this excursion.

The most successful visit was an excursion on Saturday, 3rd September, to the Hare's Gap, when 37 members attended, most of whom, despite a strong gale and frequent very heavy showers, succeeded in reaching the Gap and even the Diamond Rocks, some 200 or 300 feet higher. A number of very good specimens were obtained from the Diamond Rocks, including very fine beryl.

Mention must also be made of the visit to the Silent Valley Reservoir on Saturday, 17th September, when over 150 members attended, the attraction being largely geological.

The success of the above excursions would seem to indicate that it would be wise to abandon Sectional Geological excursions entirely, and by preference include on the Summer Programme two or more General Excursions in which the chief interest would be Geological.

A. M'I. CLELAND, }
JOHN J. HARTLEY, } *Hon. Secretaries.*

REPORT OF ZOOLOGICAL SECTION.

In zoology the work as a section showed no improvement on that of last summer.

At the excursion to Larne and Waterloo on the 4th June, there were 4 members present. A fair number of beetles, as well as land and marine mollusca were secured, among the last-named being *Anomia ephippium*, *Lingula trifasciata*, *Bittium reticulatum*.

Only one member turned up for the excursion to the Lagan fixed for the 10th September, and so it was decided to cancel it.

But though the Sectional work in zoology is disappointing, it is interesting to note that some individuals are by no means idle.

W. M. Crawford has done well amongst the Coleoptera, although new to this branch of zoology, and has added 8 new records—one is new to Co. Fermanagh, 2 to Co. Antrim, 4 to Ulster, and one to the Irish list (Co. Antrim).

Other members have done good work among the mollusca. *Leucopepla bidentata* (Montagu 1808) has been added to the known fauna of Counties Sligo, Antrim, and Londonderry, whilst Miss Fisher also took some living specimens at Mahee Is., Co. Down, 1930. R. MacDonald discovered it independently a little later at the same place, and also at Groomsport.

R. MacDonald obtained *Hydrobia jenkinsi* (Smith, 1889) at Nora's Grave, Cave Hill, Co. Antrim, where it suddenly appeared in quantity. This station is 500 feet above sea-level—an unusual height for the species.

R. J. Welch secured *Helicella intersecta* Michaud in plenty, both living and dead, on a talus near the Madman's Window, on the Coast Road, Co. Antrim.

R. MacDonald obtained several specimens of *Vertigo angustior* Jeffreys, at Groomsport, Co. Down, 7th May, 1932, in a Holocene deposit—new to both recent and fossil fauna of Co. Down.

D. J. CARPENTER, *Hon. Secretary.*

REPORT OF ARCHAEOLOGICAL SECTION.

Four excursions were held in the summer and autumn of 1932. On May 28th the hearth-sites in Dundrum sand-hills were re-examined, and a few interesting things picked up. On 13th August some places of antiquarian interest in the Lagan Valley were visited — Drumbo Round Tower, Farrell's Fort, and the Giant's Ring. The Section went farther afield on 10th September, when it journeyed to the Newry district, and visited Drumiller Mound, the Dane's Cast, the Old Church of Killeavy, and Clontygora Dolmen. Mr. John Richardson, of Bessbrook, Dr. and Miss Barcroft, of Newry, and Mrs. Chambré, of Killeavy, kindly acted as local guides. The final meeting of the Section was held at the Municipal Museum, on 29th October, followed by tea at the Carlton.

All the excursions were well attended. Twelve new members joined during the year.

A. ALBERT CAMPBELL, }
MARY GAFFIKIN, } *Hon. Secretaries.*

REPORT OF SURVEY OF ANTIQUITIES
COMMITTEE.

The Survey of Antiquities in Northern Ireland is steadily progressing. The work of classifying and mapping the already existing Ordnance Survey records is being continued; 330 for Co. Down have been indexed. Thanks are due to Dr. Chart and the Staff of the Public Record Office for kind assistance in this work.

In addition to these records, the following have been received from voluntary workers.

	Photographs	Plans	Reports
Standing Stones	19	3	13
Dolmens	39	3	5
Stone Circles	5	3	6
Cairns	21	20	27
Raths and Cashels	15	9	30
Churches	29	0	8
Souterrains	1	3	10
Castles	29	0	3
Round Towers	6	0	0
Crannogs	1	0	0
Other Antiquities	21	0	12
Total	186	41	114

There are now 33 names on the list of voluntary workers. Thanks are due to all who have assisted in the work during the past year, especially to Mr. C. W. Gordon, President of the Londonderry Field Club, also to Mr. A. M'Aleer and Mr. George Barnett, of Sixtowns, for the numerous and excellent reports which they have sent in.

It is to be hoped that the work will continue satisfactorily during the coming year.

M. GAFFIKIN, *Hon. Secretary.*

B.N.F.C. JUNIOR DIVISION.—REPORT FOR YEAR ENDING MARCH, 1933.

The numebr of Junior Members on the list is 210. During the year fourteen new members were elected, four resigned, nine names were removed for non-payment of subscriptions, and two members were transferred to the Senior List.

The Junior Division Committee met four times, and there were two special indoor meetings for junior members. On five of these occasions we were indebted to Mr. Davison for the use of his office.

A special committee appointed by the General Committee drew up a scheme for more educational work for the prizes usually offered for the year's work. The results were disappointing, there being no entries.

Two new developments have been created in the Junior Division, and have been sponsored chiefly by the Junior Committee members, Felicity Bolton and Sam Kernaghan. The first of these developments was the forming of sections to work especially at zoology and geology, and the second is a monthly magazine edited, typed, and illustrated by the aforementioned two, aided by a few other junior members.

A gift of setting boards and other apparatus was received from Mr. Norman Greeves in June.

An unusual feature of the *Conversazione* was a show of work done by the Natural History Society of the Friends' School, Lisburn, whose Secretary has given our Division much valuable help.

There were fifteen entries for the five prizes offered at the *Conversazione* for 'juniors' exhibits. This year certificates were awarded to those whose work merited some recognition.

The following excursions were held:—

May 24—Club general evening excursion. Conductors,
Prof. Gregg Wilson and J. A. S. Stendall.

- May 28—Balmoral Agricultural Show. Conductor, Mr. Rhinehart.
- June 15—Botany ramble near Stormont. Conductor, Captain Chase.
- Sept. 2—Ardglass—fisheries and seaweed study. Conductors, Mr. G. Steven and Miss M. Rea.
- Sept. 17—Toome and Antrim Round Tower (by courtesy of Mr. Fox, of The Steeple, Antrim). Conductor, R. J. Welch.
- Oct. 8—Fungus Foray—Hillsborough. Conductor, A. E. Muskett.
- Oct. 15—Conlig. Conductor, Mrs. Nodder.
- Oct. 18—Conversazione.
- Oct. 28—Special indoor meeting to consider forming of sections. Speakers, Sam Kernaghan and Felicity Bolton.
- Nov. 5—Geology section visited Queen's Geological Department. Conductor, Professor Charlesworth.
- Nov. 11—Zoology section met in the Museum. Talk by Professor Gregg Wilson.
- Nov. 19—Geology section met on Cave Hill. Conducted by Robert Bell.
- Dec. 2—Visit to Gallaher's Tobacco Factory.
- Dec. 17—Talk on nature phôtography by Mr. Benington.
- Mar. 3—Special indoor meeting to co-ordinate work for next Conversazione.
- Mar. 25—Orlock—marine zoology and seaweed study. Conductors, R. MacDonald and Miss Rea.
- WINIFRED NODDER, *Hon. Sec.* (Junior Division).



The following office-bearers were elected for the Session 1933-34:—President, Emeritus Professor Gregg Wilson; Vice-President, C. R. Nodder; Hon. Secretary, J. Skillen; Hon. Treasurer, A. H. Davison; Hon. Librarian, W. M. Crawford; Hon. Recording Secretaries, Miss Nora Fisher and R. S. Lepper; Hon. Secretaries of Sections—Botanical, Miss W. J. Sayers and Rev. W. R. Megaw; Geological, A. M'I. Cleland and J. J. Hartley; Zoological, J. S. Loughridge and James Orr; Archaeological, Miss Mary Gaffikin and A. A. Campbell; Hon. Secretary Junior Division, Mrs. Winifred Nodder; Ordinary Members of Committee (retire 1934), Captain C. D. Chase, J. A. S. Stendall and Wm. Sweeney; (retire 1935), Robert Bell, W. G. Burns and G. C. Reilly; (retire 1936), D. J. Carpenter, Professor J. K. Charlesworth and R. J. Welch.

CLUB MEDALLISTS.

1923. William Swanston, F.G.S.
1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
1925. Nathaniel Carrothers.
1926. Robert Bell.
1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
1928. R. J. Welch, M.Sc., M.R.I.A.
1929. }
1930. } No. award.
1931. S. A. Bennett, B.A., B.Sc.
1932. J. A. Sidney Stendall, M.R.I.A.



Dr.

Hon. Treasurer's Account for the Year ending 31st March, 1933.

Cr.

Balance from year 1931-32	...	£7	8	3	Printing and Stationery	...	£47	0	4
Subscriptions received, including arrears:—	...				Postage	...	...	41	11
456 at 6/-	...	136	16	0	Cost of <i>Proceedings</i>	...	...	67	0
Subscriptions paid in advance for year 1933-34:—	...				Expenses of Conversazione	...	...	10	7
18 at 6/-	...				Hire of Museum Rooms	...	...	12	2
40 Entrance Fees at 5/-	...	5	8	0	Hire of Lantern	...	...	7	0
Subscriptions received from Juniors	...	10	0	0	Expenses of Junior Division	...	...	12	5
Sale of Junior Badges	...	3	4	0	Clerical Assistance	...	...	5	5
Balance from Excursions	...	0	4	4	Survey Committee	...	...	0	11
Sale of Floras	...	44	14	2	Inscribing Prizes	...	...	1	16
Copy of <i>Proceedings</i> , Glasgow University	...	0	2	6	Subscription to Bonamargy Fund	...	...	4	4
Life Membership Fee	...	0	1	6	Xmas Gratuity	...	...	0	10
	...	4	4	0	Incidental Expenses:—Engraving Medals and Cash Book	...	...	0	7
	...				Balance carried forward to next Account	...	...	2	1
		£212	2	9				£212	2
									9

There remain in Hon. Treasurer's hands Junior Badges to the value of £3 3s 11d.
Audited and found correct.

25th April, 1933.

C. R. NODDER.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1934
(SEVENTY-FIRST YEAR)

SERIES II.
VOLUME IX.



PART VI.
1933-34

EDITOR:
W. M. CRAWFORD, F.R.E.S., F.Z.S.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-FIRST YEAR, 1933-34.

GENERAL COMMITTEE.

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Emeritus Professor GREGG WILSON, O.B.E., M.A., D.SC., M.R.I.A.

Vice-President:

C. R. NODDER, M.A.

Hon. Treasurer:

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Hon. Librarian:

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Orissa, Marlborough Park South, Belfast.

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Miss W. J. SAYERS, B.A.

Hon. Secretaries Geological Section:

A. M'I. CLELAND.

J. J. HARTLEY, M.SC.

Hon. Secretaries Zoological Section:

J. S. LOUGHRIDGE, B.SC., M.D., F.R.C.S.

JAMES ORR, M.B.O.U.

Hon. Secretaries Archaeological Section:

Miss MARY GAFFIKIN.

A. ALBERT CAMPBELL, F.R.S.A.I.

Hon. Secretary Junior Division:

Mrs. C. R. NODDER.

Ordinary Members of Committee:

Retire 1934—

Capt. C. D. CHASE, M.C., M.A.

J. A. S. STENDALL, M.R.I.A.

WM. SWEENEY.

Retire 1935—

ROBERT BELL.

W. G. BURNS.

GEO. C. REILLY, M.I.M.E.

Retire 1936—

D. J. CARPENTER, A.R.C.S.C.L.

Professor J. KAYE CHARLESWORTH, D.SC., M.R.I.A., F.G.S.

R. J. WELCH, M.SC., M.R.I.A.

Hon. Secretary:

JOSEPH SKILLEN, 25 Stranmillis Gardens.

PROCEEDINGS.

SUMMER SESSION.

COLERAINE AND DISTRICT.

Date—6th May, 1935. Conductors—J. Skillen, S. Henry and S. D. Glassey. Number present, 40.

The good luck of the Club in regard to weather held, for on reaching Frocess Moss, on the north side of Ballymena, a nesting-place of the black-headed gull, the sky cleared, and the day finished with practically no rain. On reaching Coleraine the Route Club joined up, bringing the number present to about one hundred.

After a cup of tea at Coleraine conveyances were mounted for the Norman motte and bailey Fort at Ballycairn, where Mr. S. D. Glassey gave an interesting talk on the grant of territory by John De Courcy to his wife Affreca and the identification of place names in this locality as given by De Courcy in his charter. Mr. S. Henry, who helped in this identification, also spoke.

Returning to the east side of the river the party visited the Loughan Island district, and Loughan as the Lagan-clunedalik of Charter I. was explained. From the tumulus overlooking the river on which the party was assembled a fine view of the country was obtained. Along the river banks were spread great masses of alluvium, taken from the river during the operations of the Bann drainage scheme.

The next stop was at Ballnacree, where there is an interesting prehistoric monument, a burial mound, which is sometimes claimed as a lake dwelling. Here the natural meandering of a rivulet has been converted into an artificial maze or labyrinth. Mr. Glassey expressed his belief that this was a North of Ireland illustration of the Trojan Game or Walls of Troy imported from the East, and of which there are several illustrations in ancient earthworks in England. Sometimes these labyrinths are traced on stone, possible examples occurring at New Grange, Co. Meath. The whole question is worth investigating, and the first step would be an air photograph of this ancient site and then excavation of the mound.

Gaining the road by a tortuous path through this ancient maze the way was taken for the next stop at Derrykeighan. Here Mr. Hugh A. Boyd gave an interesting talk on this ancient religious foundation, pointing out that it is one of the most important in the North. Dr. Nevin, whose forbears lie in the ancient graveyard surrounding the ruins, also addressed the company on its history.

The ancient church is smothered in ivy, which will shortly destroy what is left of the building, and hopes were expressed that something should be done by its custodians to arrest this decay.

Leaving Derrykeighan the party proceeded to Ballyarton, the home of Mr. and Mrs. M. M. Watson, who generously entertained all to tea. There is a splendid rock garden, made and tended by Mrs. Watson, and a holy well and standing stone of great interest, the well being resorted to by people in the neighbourhood for curative purposes.

A pleasant hour was spent in the rock garden, and afterwards, on the motion of R. S. Lepper, seconded by S. Henry, a vote of thanks was accorded to the hosts for their hospitality.

KINGDOM OF MOURNE.

Date—19th-21st May, 1933. Conductors—Col. Berry and J. Skillen.

A combined week-end excursion to the ancient Kingdom of Mourne was held by the Belfast and affiliated Naturalists' Field Clubs.

The Belfast members, joined by the Route club contingent, left the Old Museum, accompanied by the President, Professor Gregg Wilson. The headquarters of the excursion was at the Great Northern Hotel, Rostrevor, where the party was completed by contingents from the Londonderry, Limavady, and County Tyrone clubs.

Professor Gregg Wilson welcomed all members, especially those of the affiliated clubs, on whose behalf C. W. Gordon, William D. Cousins, and H. L. Glasgow replied.

Colonel Berry then gave a lecture on the archaeological aspect of the projected tour, stating that the territory was claimed as the cradle of the Ultonians, and dealing with the stone circle and souterrain at Dromena. In the souterrain there is an apse with a triangular stone, associated possibly with a primitive religion. An interesting discussion followed the lecture, which was illustrated with maps and diagrams.

On Saturday, 20th, at 9-30 a.m., notwithstanding unwelcome rain, the party left in cheerful mood. The mountains were veiled in the grey rain, but the drive up the Kilbroney valley was most interesting, the masses of gorse, in full bloom, being a glorious sight.

A stop was made at Altnataggart (the wood of the priest) to see the great granite boulder on which Mass was celebrated in the days of proscription. Here in the shelter of the woods, far from the hamlets of men, the priest celebrated Mass to his devout following.

Proceeding up the valley, it was not long before Goward Mountain was reached, on the slopes of which is situated the horned cairn recently excavated by members of Queen's University.

Miss Gaffikin, who assisted in this investigation, gave a talk on the results achieved. In the cairn was discovered Iron Age pottery, although megalithic monuments of this class are usually attributed to the Bronze Age period, which suggests that the date of their erection, at least in Northern Ireland, would require to be revised.

An interesting discovery in the cairn was evidence of an ox sacrifice, which was an ancient custom in primitive burials.

The next stop was at "Pat Kearney's Big Stone" dolmen, one of the finest megalithic monuments in the north, the cap-stone of which is estimated to weigh about fifty tons.

At lunch time, as the weather had not cleared, it was impossible to partake of an *al fresco* lunch as intended, so hospitality was sought in sheltered Castlewellan, and found in the hostelry of Mr. Philip M'Ardle. With the disappearance of lunch came the disappearance of rain, and the remaining part of the day was fine.

The next objective, Maghera old church and round tower, was soon reached, and Colonel Berry told what was known of its history, pointing out that, like many other ancient religious sites, it was built on a rath.

The party then proceeded to Slidderyford to visit the well-known dolmen of that name. At the dolmen David E. Lowry gave a talk on these megalithic monuments, their origin and significance, and had kindly arranged for the opening of a souterrain in the same field for inspection.

The final visit of the day was to Dundrum Castle, that fine example of Norman military architecture. Here Colonel Berry and R. S. Lepper spoke about the Knights Templar and their association with this castle.

The hotel being reached, dinner was thoroughly enjoyed, after which Miss W. J. Sayers gave a talk on the wild flowers collected during the day, and was succeeded by Dr. Herbert Rohleder with a paper on the geology of the Mourne Mountains.

Both contributors were heartily thanked by the president, and the meeting closed after an interesting discussion on the subject matter of the papers.

On Sunday, after breakfast, some went to church services, some climbed to Cloughmore, the more adventurous proceeding to the top of Slieve Martin, and others went to see the sylvan beauties of the Fairy Glen and to visit Kilbroney old church.

After lunch, the entire party left for Kilkeel and visited the antiquities of this place, including the "Giant's Grave," in the grounds of the parochial house, and the dolmen known as the "Crawtree Stone." The company now divided, one half going to the Deer's Meadow, the source of the River Bann, and the other to the Happy Valley. Miss Watt (Portrush), President of the Route Club, here joined the latter party.

At the hotel Professor Gregg Wilson showed mosquitoes he had collected in their various larval stages, and Thomas Greer made some interesting notes on the butterflies of the district.

After tea at the hotel, the party left for home, having had a most instructive and enjoyable excursion.

MOIRA DISTRICT.

Date—3rd June, 1933. Conductor—Miss W. J. Sayers. Number present, 43.

Although this district was, in 637 A.D., the scene of one of the most famous battles recorded in early Irish history, the main interest of the excursion was natural history, to which the party devoted itself after a visit to the ruins of the ancient church and the site of the round tower of Trummery, where A. A. Campbell gave an informative talk on the subject of the church and of round towers in general.

The three-mile walk along the Lagan Canal and the Broadwater furnished the botanists with a variety of water-loving plants, among which were *Menyanthes trifoliata* (Bogbean), *Nasturtium amphibium* (Water Radish), *Ranunculus Lingua* (Greater Spearwort), *Nymphaea lutea* (Yellow Waterlily), and *Acarus calamus* (Sweet Rush).

Notes were made by the ornithologists of 36 species of birds, including a swan which remained quietly on her nest whilst the party passed close by.

After an *al fresco* tea near Aghalee, the members proceeded to Lower Ballinderry and Lough Beg, and at a brief meeting the President. Emeritus Professor Gregg Wilson, welcomed two distinguished visitors, Mr. Perry, of Liverpool Museum, and Mr. Ellison, of Wallasey.

DRUM BRIDGE TO SHAW'S BRIDGE.

Date—Tuesday evening, 13th June, 1933. Conductor, J. A. S. Stendall. Number present, about 35.

A special motor coach conveyed the party to Drum Bridge, from which point a walk of about two miles along the tow path brought one to Shaw's Bridge. The chief interests, botany and zoology, were both zealously pursued. J. A. S. Stendall gave interesting talks on specimens collected, while R. J. Welch delved assiduously into the waters of the Lagan for mollusca, with good results. An object of particular interest was an almost dead Beech tree thickly infested on trunk and large branches with the Felted Beech Coccus (*Cryptococcus fagi*). Altogether the excursion was very pleasant and interesting. There was a large turnout of Junior as well as Senior members.

TARDREE AND SCAWT HILL.

Date—17th June, 1933. Conductors, R. Bell and J. J. Hartley. Number present, about 45.

This, the fifth field excursion of the present session, was mainly geological in its interest. The chief object was to investigate some of the old volcanic rocks, or vents, of southern Antrim, but archaeology and botany also received attention.

The party left Belfast at 2 o'clock and proceeded *via* Doagh to the Hole Stone, where a discussion took place as to the original object and origin of this interesting pre-historic monument.

At Sandy Braes, the acid lavas, rhyolites, and pitch-stones, which are interpolated amongst the better-known basalts, were examined.

The old volcano of Tardree Mountain, from which these lavas were poured out, was visited, and specimens of the various rock-types collected.

The valleys of the Kells and Glenwherry Rivers were traversed, and at Kilwaughter, one of the largest chalk

quarries of the district was visited. The quarry showed excellent examples of the effects of solution of subterranean waters on the limestone rock.

Tea was taken at Larne, and afterwards the party proceeded *via* Cairncastle to Scawt Hill. Time did not permit of an actual visit to the summit, but the main features of the hill were pointed out, and it was explained as one of the vents which had supplied the basalts, and contrasted with the Tardree vent.

The route then lay along the Sallagh Braes to Kil-waughter; on the way Robert Bell pointed out the locality on Knock Dhu where the rare Alpine plant *Dryas octopetala* can be obtained.

Interesting geological talks were given by J. J. Hartley (Geological Department, Queen's University), at the various stopping places. Belfast was reached about 9-30 p.m.

NEWTOWNCROMMELIN.

Date—24th June, 1933. Conductors, Dr. D'Evelyn and J. Skillen.

The party left the Old Museum at 9 a.m. sharp, and the first halt was at M'Quillan's Castle, which is mis-named, at it was really a cashel, and the next at Dungall Moat, which is said to be a Norman motte and bailey castle, and is one of the finest earthen erections of its class in Co. Antrim. From its flat top, sixty feet high, there is a splendid outlook over the valley of the Cloughwater. This moat is in the care of the County Council and protected from destruction.

Proceeding, the sites of the Lisnacrogghera and Craigy-warren crannoges were pointed out. In the former were found the valuable and unique iron and bronze objects now in the Belfast Museum, consisting of sword scabbards, etc.

The next stop was at Deschart Old Graveyard and Holy Well, where Dr. D'Evelyn told all that is known of this ancient religious foundation, and although services here have been discontinued for hundreds of years it is still hallowed by the interment of the dead.

After lunch a walk of about a mile was taken up the Ballsallagh Water to Dungonnell Stone Fort and Giant's Grave. The Giant's Grave lies beside the fort, being several yards long. It is apparently undisturbed since its erection, and would be well worth excavation to throw light on the purpose and use of these structures,

Reaching Parkmore, instead of following the main line of excursion traffic to beautiful Glenariff, the upper or Ballyemon glen on the north side was taken, and frequent stops were made to admire the sylvan beauties of the glen.

Half-way down the glen the farmhouse of Mr. M'Curry, Tavagharry, was visited, the inmates being busy at basket-making. In the fields around the house thousands of stone axes (Celts) had been found, for the slopes of Tievebullagh were an axe factory of primitive man. The discovery of this prehistoric industry was the work of the late well-known antiquarian, W. J. Knowles, of Ballymena.

Reaching Cushendall an excellent tea was enjoyed before leaving for home.

CULTRA.

Date—Tuesday evening, 27th June, 1933. Conductor, D. J. Carpenter.

The party travelled by train to Cultra, and walked to Holywood along the shore.

At Cultra the conductor gave a talk on the rocks to be seen during the walk. The outcrop of the Lower Carboniferous shales on the shore at Cultra was examined, the marked fault, separating them from the Triassic sandstones, was pointed out, and small portions of Permian limestone were picked up and examined.

D. J. Carpenter also gave a talk on the marine mollusca and other marine fauna, and described the features which characterised sea shore plants.

Among the specimens found illustrating the latter were:—*Armeria maritima*, *Plantago maritima*, *Plantago coronopus*, *Glaux maritima*.

BALLYHORNAN AND BENDERG.

Date—1st July, 1933. Conductors, G. C. Reilly and A. H. Davison.
Number present, 56.

Leaving the Old Museum, College Square North, at 2-15 p.m., the first halt was at the lock gates on the River Quoile, which were constructed to keep out the sea water at high tides and enable the flat lands adjoining the river to be used for pasturage. Passing Quoile Castle and Quay, the next stop was at the ancient church at Raholp, reported to be a foundation of St. Patrick. The ruin, which was

largely conserved by the late F. J. Bigger, a Past President and Secretary of the Club, is notable in that its entrance is from the north.

Proceeding along the road to Strangford the old bed of an original outflow-channel from Strangford Lough towards Killough was pointed out and shortly afterwards the party dismounted at Ballyalton megalithic monument, where Miss M. Gaffikin, the secretary of the Survey of Antiquities Committee, graphically described the excavations and exploration just completed. The monument is in the form of a "horned cairn" and is in a fairly good state of preservation, due probably to its somewhat inaccessible position.

The "finds" comprised many typical examples of worked flints as well as human remains, including a considerable number of children's teeth. The ancient pottery disclosed contained a specimen of burial urn not previously recorded in Ireland, and investigations are still proceeding before a final report is made.

One object of the run was to afford opportunity to examine the natural history of Benderg and Ballyhornan Bays, and the main features of the place having been outlined the members divided in quest of their various studies.

The geology of the district is particularly interesting, as evidence of glaciation action is clearly shown in the scored and planed surfaces left by the ice on its passage from Scotland in a south-westerly direction, whilst the existence of Carboniferous erratics of considerable size, cliffs of boulder clay, glacial sand, and gravels, also add evidence of an ice-field. A Recent "raised beach," which is calcareated into a compact conglomerate, came in for some attention.

The botanists found themselves in a veritable paradise and reported several additions to the former lists of flora.

The chief item of zoological importance was the discovery by Canon Foster of a colony of small bees, *Colletes daviesana* Smith, at Ballhornan Bay. This insect has only one other known habitat in Ireland (at Waterford) and is peculiar in that it bores out small pockets in the sandy cliffs and there deposits pollen and honey, collected from yarrow and feverfew, which abound locally.

Several nests of the jackdaw were seen tunnelled into the cliff face, whilst amongst the other birds observed were oyster-catcher (which young in nest), and sheldrake with young (afloat).

The route for the return journey was *via* Downpatrick and Crossgar.

BOYNE VALLEY.

Dates—Tuesday, 11th, to Friday, 14th July, 1933. Conductor, J. Skillen.

The party left Belfast on 11th July by the 5-40 p.m. Dublin mail train, accompanied by the President (Professor Gregg Wilson).

On reaching Navan a club meeting was held after dinner at the hotel, when the recently formed Omagh Field Club's application for affiliation was enthusiastically passed. This is now the fifth club affiliated with the parent society, and the Hon. Secretary of the new club (Rev. E. M. Gumley, B.D.) joined the excursion at Kells the next morning.

Dr. R. Ll. Praeger, P.R.I.A., who had arrived earlier at Navan and made a collection of wild flowers, gave a talk on the flora of County Meath, pointing out how it differed from that of County Antrim, the former being a limestone and the latter a basalt flora; one interesting illustration among many others being the difference between the ordinary field poppy in the two counties.

Next morning the party left early for a long day in the field. The first place visited was the old church and round tower at Donaghmore, the latter about 100 feet high. An interesting feature of the Church is the crucifix carved in stone over the doorway, a proof of the Christian origin of these buildings. The party then proceeded to Donaghpatrick, where the rector (Rev. J. M'Cann) conducted the members over the church and its precincts. The church is modern, but the tower in 13th century. The rector pointed out the monolith and ancient font in the graveyard. After that Kells was soon reached. The first place visited was the old church, or rather the site, the present church being comparatively modern, the tower alone being pre-Reformation. The ancient crosses in the graveyard were carefully examined, as well as the Town Cross in the market square, but the most interesting place of all was St. Columcille's house, a small chapel or oratory. The probability is that this building was erected by Cellagh, Abbot of Iona, who about the year 806 had to flee with his brethren from thence when the Western Isles of Scotland were being ravished by the Danes. They brought with them the relics of St. Columcille, established the monastery at Kells, and erected St. Columcille's house as a receptacle for the relics of the saint and as a residence for the anchorite who kept watch over the sacred treasure.

From Kells the journey was along the lovely shore of Lough Ramor to Virginia, where tea was provided.

The next stop was at Oldcastle, where Mr. Crowley, a local resident, met the party and conducted them to Loughcrew and Slieve-na-Calliagh. A long and gentle climb to the top of the latter hill brought the party to the Hag's Chair on the summit, and to one of the numerous cairns situated thereon. This cairn is similar to the better known one at New Grange, on the Boyne. Here, it is claimed by modern research, was the site of the Tailtean Games, the Irish equivalent of the Olympic Games. These games were carried on for centuries during the Christian era. From the top of these hills a glorious view is obtained of the flat plain of Meath, and, visibility being good, the Wicklow Hills on the south, as well as the Mourne on the north-east, were plainly to be seen.

At Balrath Mr. and Mrs. Nicholson invited the party to afternoon tea at their palatial home. After tea a visit was made to the extensive gardens of this beautiful estate, where the rare shrubs and lofty conifers were much admired. Only the soil and climate of Meath could produce such lawns and such vegetation.

Bidding host and hostess good-bye, the conveyances were mounted and Navan soon reached, where the excellent dinner provided was much enjoyed.

After dinner a meeting of the Club was held, when another talk was given by Dr. Praeger on the wild flowers collected during the day, and Colonel R. G. Berry, M.R.I.A., also gave a talk on Tara in preparation for the visit on the following day.

On Thursday morning at 9-30 the party proceeded to Tara, where some time was spent.

From Tara the way was taken to Bective Abbey, stopping en route to examine a foot-bridge over the Clady stream, which is said by Dr. Petrie to be the oldest stone bridge in Ireland. Bective was a Cistercian house founded by the King of Meath in the twelfth century. This building has been so much altered that not much of its original plan remains, remnants of the cloister arcade being the most interesting part left of the old structure.

At Trim, the party was met by Mr. Montgomery, of Trim Abbey, and under his guidance visited the Pro Cathedral, with its ancient armorial stone slabs, the steeple, the remains of the ancient abbey of Trim, and King John's Castle. The castle is one of the finest specimens of Anglo-Norman military architecture in Ireland, and was founded by Hugh de Lacy, Lord of the Palatinate of Meath, the present building being erected in A.D. 1220.

On the return journey a stop was made at Newtown-Trim to see the ruins of the great Augustinian Abbey, founded in 1206, and the ruins of the Priory of St. John.

After dinner Dr. Praeger gave a talk on the wild flowers collected during the day. A warm vote of thanks was passed to Mr. John Foley, town clerk, Navan, for his assistance during the excursion. His knowledge of the district was invaluable, and his courtesy inexhaustible.

On Friday morning a start was made at 10 o'clock, the first stop being Beauparc, where Mrs. Lambert had kindly given permission to pass through the demesne. Beauparc has been visited by Queen Victoria, King Edward the Seventh, and the present King, before he came to the throne. Here the bus was dismissed and sent round to the bridge of Slane to meet the party, who walked the two miles along the river to the rendezvous.

The Boyne along this stretch is at its loveliest, with high wooded bluffs on either side, the river having cut a gorge through the Carboniferous limestone. There is no need to visit the storied Rhine when the Boyne—from Navan to Drogheda—is at our doors.

On rejoining the bus at Slane a visit was made to Rossnaree and the lonely grave of King Cormac, who refused to be buried at Brugh-na-Boinne with the Kings of Tara, because they worshipped gods of wood and stone.

On the way back to Navan the last visit of the excursion was made to Athlumley Castle, which is now a ruin and is at present in the hands of the Board of Works for preservation. The last occupant of this castle was Sir Launcelot Dowdall, who on hearing of the issue of the Battle of the Boyne and the loss of the cause to which he was so attached, burned his castle lest the victor should rest under his ancestral roof. After watching its destruction he fled to the Continent, from whence he never returned. Close by are the ruins of Athlumley Church, and it was interesting to note that the windows, dated about 13th century, were splayed to the outside and not to the inside, as is usual.

Dinner at the hotel and packing up for home finished the excursion except for a last look at the meeting of the waters, where the Blackwater weds the Boyne. This place is known locally as "The Ramparts," and is being preserved as a public park for the town of Navan.

WHITEABBEY TO MACEDON.

Date—Tuesday evening, 25th July, 1933. Conductor, A. M'I. Cleland.
Number present, 25.

On arrival at Macedon Point the Conductor indicated the various interesting features in the geology of the foreshore revealed at low tide. These included large exposures of Triassic marl and sandstone, penetrated by numerous basaltic dykes running in a general N.W.-S.E. direction. Among these are the famous cross dykes cutting each other at right angles, these dykes being a classic feature of the Antrim side of Belfast Lough.

In addition, many glacier-borne erratic boulders are to be seen, one of them, a huge mass of dolerite 33 tons in weight, known as "Ross's Rock," having been carried in all probability from the neighbourhood of Fair Head.

The conductor also pointed out that the foreshore here has undergone considerable change during the last sixty years. Formerly there existed large stretches of mud and sand, the latter providing cockles in quantity. Owing probably to erosion of the protecting walls of the cross dykes these beds have entirely disappeared, giving place to large areas of marl and sandstone. On these new areas mussels have now found a congenial home, huge beds of them now covering many acres.

The return journey was made through the grounds of Macedon House, kindly thrown open to the members by Mr. C. J. Agnew. The grounds are extensive and include many fine trees and a delightful glen, furnished with numerous miniature falls, pools, and fountains. On reaching the 200 years old mansion of Macedon, Mr. and Mrs. Agnew invited the party to partake of refreshment. After a Junior Member had been elected and Mr. and Mrs. Agnew and family had been suitably thanked by the Conductor for their hospitality, the party returned to Belfast.

CARLINGFORD.

Date—29th July, 1933. Conductors, R. J. Welch and J. Skillen.

The members left the Old Museum at 9 a.m. and drove to Newry, where a stop was made for refreshments.

Reaching the frontier Customs posts at Omeath the conductor gave an account of the prehistoric importance of this place. Omeath takes its name from the Meigh, a Pietish clan who occupied this territory before the coming of the Celts.

On the other side of Carlingford Lough stands Narrow-water Castle, built to defend the "Carlingford Pass," and the ford over the Lough. This ford was on one of the main roads between the North and South, and here it was that the celebrated Hugh O'Neill attempted to ambush Lord Mountjoy's army, with unfortunate results to himself. Captain Edward Trevor commanded the rear-guard of Mountjoy's force, and his name is commemorated in Rostrevor.

Reaching Greenore all were delighted with the beauty of this place. The hospitable doors of the Great Northern Hotel were thrown open to the visitors and lunch enjoyed in the bright sunshine of the hotel veranda.

After lunch a visit was made to the seashore to examine the twenty-five foot raised beach, which is one of the best exposed sections of this geological phenomenon to be found in the North, and A. H. Davison gave a talk concerning it.

After paying a visit to the lighthouse the beauties of Greenore were left with reluctance, and a return was made to Carlingford, which, like many other maritime towns in Ireland, was founded by the Danes.

The first place visited in Carlingford was King John's Castle. In the courtyard of this Norman stronghold the conductor gave a talk on its history, pointing out how it differed from the usual Norman castle, in that it had no donjon keep like Carrickfergus, but was constructed with curtain walls and flanking towers, the date of its erection being probably 14th century.

The next place to be inspected was the walls of the town, or what is left of them. Carlingford after being burned by hostile Irish septs was walled in 1505, and the portions of the wall still standing are interesting, inasmuch as the port holes have a double splay.

A visit was then paid to the remains of the Dominican Abbey, which was founded by Richard de Burgh, Earl of Ulster, in 1305, and dedicated to St. Malachi.

The party subsequently visited the Tholsel, which stands astride a narrow street. In this building a parliament was said to have met and made laws for the whole Pale; here also sat the sovereign and burgesses with governance over a wide district. The governing body was created under a Charter of James I., and the town sent two members to the Irish Parliament from 1559 to 1800, a period of over two hundred years.

Next, the Mint was visited, and lastly Taafe's Castle. This is a great tower in excellent preservation. The last Taafe prominent in Irish history was Nicholas, Earl of Carlingford, who fell at the battle of the Boyne, on the side of King James.

Returning to Newry an excellent tea was enjoyed, and afterwards the road was taken for home.

The thanks of the party are due to Mr. Ambrose Woods, of Carlingford, and to Mr. Christopher Cody, G.N. Railway, for their great assistance during the excursion.

THE FLUSH.

Date—Tuesday, 1st August, 1933. Conductor, C. R. Nodder.

This was an evening excursion, the party leaving the City centre at 6-15 p.m., and it took the form of a ramble to the Flush and a return over Squire's Hill.

BALLYMENA DISTRICT.

Date—12th August, 1933. Conductors, Dr. Alex. D'Evelyn and J. Skillen.

The motor bus left the Old Museum Building at 9-30 a.m. and proceeded to Ballymena. There the party was met by Dr. D'Evelyn and passing on made its first stop at Harryville Moat, a motte and bailey of de Burgh's time, and a perfect example of this type of military fortification. Continuing on to Crebilly Hill, the party stopped a few moments to enjoy the fair prospect of the Braidwater Valley. The next halt was at the passage grave of Ballymarlow. This great cairn contains prehistoric graves, but unfortunately its symmetry has been destroyed by former plunderers looking for treasure and by field fences traversing the site.

After this, the residence of Mr. Warwick Lake, J.P., was visited to view the fort and souterrain in his grounds, the latter being entered by several members anxious to see its construction. Another souterrain was then seen in the garden of Mr. Eaton.

Lunch time had now arrived, and it was decided to enjoy this alongside Kells Abbey. During this interval J. Skillen gave a short history of the place, stating that it was founded by St. MacNesso in 480 A.D., and was known as St. Mary's of the Desert, or Templemoyle.

After rest and refreshment, a start was made for the dolmen in Ballyminstra, recently discovered by Dr. D'Evelyn. It is a small and perfect specimen of its class.

The next stop was at the urn cemetery at Ballymacilroy. Here a farmer excavating gravel in one of his fields came upon a prehistoric cemetery from which eight urns, now in the collection of the doctor, were unearthed.

Then, the crannoge at Kilnock having been seen on the way, the road was taken for Ballymena, where tea awaited the party. Afterwards, the members visited the parish church to see the ancient cross in the vestibule. This was the last visit of the excursion, the interest of which was much enhanced by talks given by Dr. D'Evelyn at the various stopping-places.

CASTLE ESPIE AND NENDRUM.

Date—19th August, 1933. Conductor, James Orr.

Castle Espie, or Ballycaslanaspeck (the town of the bishop's castle) is about three miles from Comber on the road to Ardmillan. The site of the castle is occupied by a comparatively modern dwelling, into the structure of which, however, some of the walls of the old castle appear to be incorporated. Little is known of its history beyond what one may gather from the name. Close by is a characteristic earthen fort or rath, with its associated souterrain and also a large monolithic block, perhaps the memorial to a chieftain of bygone times.

After examining these remains, the once famous Castle Espie limestone quarries and brick and pottery works were visited. The quarries were extensively worked down to the year 1880, the splendid range of Hoffman and other kilns being capable of turning out about 15,000 tons of burnt lime per annum. The pottery also produced large quantities of both unglazed and glazed ware. Some of the latter, shown by a cottager in the neighbourhood, excited the envy and admiration of the ladies of the party. Geologically, the rock at Castle Espie is an outcrop of Lower Carboniferous limestone, a formation of which only two other small patches occur in County Down. It is a bright reddish-brown crystalline rock, and in days gone by was in great demand for window and door dressings and for grave slabs, many of which may be seen at Moville and in other old graveyards throughout the county. The outcrop at Castle Espie was notable for the gigantic size of some of the fossils found in it. Huge chambered shells (*Actinoceras*), six feet long

and as thick as a man's thigh, were frequently met with. These were the remains of relatives of the present-day cuttle-fish. Unfortunately, little can be seen of the outcrop as the quarries, now disused, are filled with water.

Proceeding southwards about two miles, the next halt was at Tullynakill old church, which is now a ruin and is probably pre-Reformation, as there is a piscina in the eastern gable.

From the ancient church of Tullynakill, it is a matter of two miles to the mediaeval castle of Sketrick (Sgathdarg, red shadow), and here the photographers of the party turned a formidable battery against the grey stone pile, which withstood so many sieges in the past.

Half a mile north of Sketrick lies Island Mahee (Inis Mochaoi), formerly called Nendrum, at the western extremity of which, crowning the summit and slopes of a hill, are all that is left of the once important monastic settlement of Nendrum.

Mochaoi, an early disciple of St. Patrick, founded the monastery about the year 450 and was its first abbot. From that time until 974 there was an unbroken succession of abbots, but in that year the monastery was completely destroyed by the Danes, who killed its inhabitants and burnt and levelled all the buildings. For centuries even its site was forgotten, until it was identified by the late Bishop Reeves in 1843.

SIXTOWNS AND LOUGH PATRICK.

Date—9th September, 1933. Conductors, George Barnett and J. Skillen.

Proceeding through Lisburn, Lurgan and Portadown, the orchard countryside of Armagh was reached, and it was noticed that much of the apple harvest had been gathered in, as had the corn and hay in this glorious summer.

On reaching Cookstown, the local Field Club joined up, and the party proceeded to Sixtowns, passing Lough Fea on the way. This lovely and beautiful mountain lake may take its name from the fairies, as the whole countryside around is steeped in legendary lore.

On arriving at Sixtowns, a stop was made at the residence of George Barnett, who acted as local conductor, and some time was spent in examining his open-air geological museum. Mr. Barnett is the local Hugh Millar of "The Old Red Sandstone" fame, and has an extensive knowledge of the geology of the neighbourhood.

Rising from the valley is Owenreagh, a hill 800 feet high, up which the party now ascended, the climb being so

gradual and the moors so lovely, that no one felt fatigued. Lough Patrick at the summit was soon reached. This is a small lake of glacial origin called after St. Patrick, who founded a church at Ballyconey in the valley below, the name meaning the town of rest, or repose.

All over the top of Owenreagh are scattered granite erratics brought by the ice during the glacial period, from Slieve Gallion. Some of the erratics show the fusion of the greenstone and the granite caused by volcanic action.

There is a very interesting dyke of hornblende porphyry, from which many of the party procured specimens. Lough Patrick is a nesting-place of the black-headed gull, wild duck, and other moorland birds. Close by the lough W. R. Megaw found a moss believed to be new to the flora of County Derry.

The next halt was on the banks of the Moyola River close to the ruins of Ballinascreen old church. Here the party divided, some going with G. Barnett to visit the petrifying springs at Cavanareagh, where lime water has concreted vegetation, especially mosses, into hardened masses; and some remained behind to hear a talk by H. L. Glasgow on this ancient religious foundation. On re-assembling, a stop was made to collect specimens of the plant *Bartsia viscosa* at the only station in the North where it grows.

Shortly after, Draperstown was reached and tea enjoyed. Afterwards a meeting of the Club was held, presided over by A. M'I. Cleland, and a warm vote of thanks passed to Mr. Barnett, who suitably replied, for the trouble he had taken and the kindness shown during the excursion. The road home was through Castledawson and Toomebridge.

WOODBURN GLEN AND CARRICKFERGUS.

Date—23rd September, 1933. Conductors, G. C. Reilly and John Campbell. Number present, 53.

The members were taken by bus *via* Antrim Road to the site of the new railway crossing at Mossley, where the recently made embankment was pointed out.

Proceeding thence by Cloughfern Road, some lovely views were obtained as the Knockagh Hill was ascended. Arriving at the northern end of the Belfast Water Commissioners Works, entrance was obtained and the party conducted through the South Woodburn Glen, a water-worn defile through which part of the main water supply of the city flows, forming pools and cascades which make delightful pictures. The various features of interest in the neighbourhood were described in the passing, and shortly after

arrival at the glen foot, buses were mounted and the journey continued to Carrickfergus Town Hall where, by the courtesy of our fellow member, John Campbell (Chairman of the Council), the insignia and seals of the ancient borough were displayed and described by Mr. M'Vey, Town Clerk.

Arriving at the St. Nicholas' Church, Rev. Canon Rutherford eloquently outlined its history and the recent researches, and indicated the most interesting features. He expressed his delight at meeting the members of the Club in an official capacity and extended an invitation for a future visit.

Tea at the Y.M.C.A. formed a welcome break, and afforded the opportunity for a brief business meeting, whereat two Junior Members were elected. Immediately afterwards the entire party went to the old Castle and thoroughly explored it, listening the while to the tales told by the custodian who acted as guide. The run home by Shore Road concluded a conspicuously pleasant and profitable short excursion.

BELVOIR PARK.

Date—7th October, 1933. Conductors, H. Cairns, E. N. Carrothers and A. E. Muskett.

The 17th and last excursion of the season took the form of a Fungus Foray.

ANNUAL CONFERENCE AT PORTBALLINTRAH.

The annual united conference of Field Clubs was held from 29th September to 1st October, the headquarters being the Red House, Portballintrae. About eighty members assembled, all six Field Clubs in the North being well represented. There were present members from Londonderry, Limavady, Route, Tyrone, Omagh, and Belfast. The conference was presided over by Professor Gregg Wilson, President Belfast Naturalists' Field Club, and the Honorary Secretary (Mr. Joseph Skillen) of the Belfast Club made the arrangements.

After dinner the President gave a warm welcome to the members present and pointed out that these annual conferences had gained in strength by the formation of the Omagh Club, which had been organised by the Rev. E. M. Gumley, there being now over 1,750 Field Naturalists in the combined clubs.

A discussion initiated by Mr. Greer, of the Tyrone Club, took place on the closer co-ordination of the Field Clubs,

and various helpful suggestions were made by speakers with this object. On the same evening a lecture was given by Colonel Berry, M.R.I.A., on the Grianan of Aileach, followed by an interesting discussion.

On Saturday morning the party proceeded on foot across the mouth of the Bush river and by the sand dunes of Runkerry Bay, to the Giant's Causeway, where the conductors, Rev. E. M. Gumley and A. H. Davison, spoke on its formation.

The walk around the bays almost to the Chimney Tops was most delightful on a morning more like spring than autumn.

On returning to the headlands, a tram was in waiting to convey the party back to Portballintrae for a well-earned lunch. In the afternoon a bus excursion was arranged, the conductors being Samuel Henry and Samuel D. Glassey, when the following places were visited: first, the ruined castle of Revallagh, where Captain Traill received the party and conducted them around, and exhibited a string of ancient silver beads, found along with portions of an oak canoe, on the site of a crannoge close by the ruins of the castle, then Gigma-Gog's Grave, the local name for an interesting dolmen, and finally Dunmull Fort, built on a great outcrop of basalt, which must have been a formidable stronghold in olden times. At each place Mr. Henry gave a history of the mediaeval clans concerned and Mr. Glassey a talk on the prehistoric period.

On the same evening, after dinner, Mr. Hugh A. Boyd, M.A., read a learned and interesting paper on the Parish of Dunluce, which was packed with information about this historic district. This was followed by a talk on botany, with special reference to the district, by Dr. Ll. Praeger.

Mr. C. W. Gordon (President Londonderry Club) brought up the question of preservation of some prehistoric remains in County Tyrone, and steps were taken to bring the matter before the proper authorities.

It was unanimously agreed that the joint excursion from 25th to 27th May, 1934, be to Greenore, and, on the invitation of the Tyrone Club, that the next conference be held in Cookstown.

At the close of this meeting Professor Gregg Wilson gave the thanks of the whole gathering to the conductors and to all others who had assisted in making the conference so successful. On the motion of Mr. H. L. Glasgow (Tyrone Club) a vote of thanks was enthusiastically passed to the President for his services in the chair.

After dinner, on Sunday, the party proceeded on foot to Dunluce Castle, where Mr. Skillen gave some facts about its erection and history, supplemented by Mr. Henry with some literary history associated with the district. All then proceeded across the drawbridge to examine the building more closely and to inspect the creditable preservation work carried out by the Ancient Monuments Committee on the historic castle.

Then to the old church and graveyard of Dunluce, where rest Kern and Gallowglass, honest merchants of Dunluce town, and the drowned sailors of the Spanish Armada.

A walk back to the hotel was followed by tea, and afterwards all separated for their respective homes, looking forward with pleasure and anticipation to the next annual conference.

The weather was delightful throughout, and the kindness of the folk at Red House unstinted.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session began with a Conversazione held in the Assembly Hall, Fisherwick Place, on Tuesday, 17th October, 1933, at which there was a very large attendance of members and friends. Tea was served from 6-30 to 7-45 p.m.

The Exhibits included:—

BOTANY.—Rev. W. R. Megaw, Mosses; Captain C. D. Chase, some European Compositae; Miss W. J. Sayers, Co. Clare Plants; Dr. Ll. Praeger, Irish Plants; Colonel R. G. Berry, Cacti and a Mandrake; Miss Kathleen Bourke and C. S. Bailey, experiments to illustrate the Life History of a Plant; Belfast Municipal Museum, models illustrating Life History of a Moss and a Liverwort; A. H. Davison, Botanical Magazine 1787, with beautiful hand-painted plates; R. M. Leman, X-Ray photographs of Plants; C. R. Nodder, Botanical Works with hand-painted engravings; A. Sharpe, Moor Balls.

GEOLOGY.—J. J. Hartley, Geological Department, Queen's University, new geological map of north-east Tyrone, and specimens illustrating the geology of the district; A. M'I. Cleland, collection of Fossils; Miss Barbara B. Catford, Igneous Rocks from Iceland; A. H. Davison, Local Igneous Rocks to compare with above; Professor J. Kaye Charlesworth, Geological Department, Queen's University, some geological maps of the United States; George C. Reilly, Fossils from Woodburn Glen.

ZOOLOGY. — W. M. Crawford, Indian Butterflies (*Papilios*), Irish Beetles; A. M'I. Cleland, Freshwater Mollusca, Victoria Nyanza, Tanganyika; George C. Reilly, Eyes of Giant Swordfish, Ear Drum of Killer Whale; R. J. Welch, Genus *Planorbis* (British) including rare albino specimens from a pond in Mountstewart Spanish Garden; J. S. Loughridge, circulation of blood in web of Frog's foot; The President, Mosquitoes and Larvae (living), Living Amoebae; Thomas Greer, Butterflies and Moths; J. A. S. Stendall, Bird Exhibit.

ARCHAEOLOGY.—R. J. Welch, Pigmy flints from Ballycastle gravels; A. H. Davison, Roman Pottery, Glass, Bronze, and Terazzo from Verulamium (St. Albans); Dr. Alex. D'Evelyn, Pigmy flints from various sites, He Kokoti, an ancient Maori bone weapon; A. A. Campbell, Irish socketed and flat bronze celts, Swedish Flint Axe; R. H. Common, Flint implements from Larne.

PHOTOGRAPHY.—A. M'I. Cleland, Local Photographs; R. J. Welch, New Geological Photographs.

MISCELLANEOUS.—George Williams, Microscopic Demonstrations; George C. Reilly, Microscopic exhibit; E. E. Evans, Regional Survey Maps.

JUNIOR DIVISION EXHIBITS.—Collected during this year. —Belemnite from Rathlin—Michael Clarke; Norfolk plants from near Sandringham—Beatrice Searle; Shells, Water-foot — Nan Hislop; Fungi from my garden — Margaret Downer; Pigmy core and flint hook, Ballycastle beach—Sam Kernaghan; Glass works slag and jasper, Ballycastle beach; Leaf prints; sketch map of Belfast district—Murphy Nodder; Moths, butterflies and chrysalids—George Burns; Zoological Section exhibit — Sam Kernaghan and others; Geological Section exhibit — Felicity Bolton, Dorothy and Edna Nelson, Beatrice Searle, Murray M'Cullough, Sam Kernaghan; Grasses and spider's nest—Dorothy Nelson; Grasses—Edna Nelson; Living ferns, seaweeds—Felicity Bolton; Leaves—Francis Mitchell; Geological specimens

from Co. Down—Bryce Duffin; 60 species of shells, Antiquarian photographs, Natural History specimens—Noel Gregg; Geological specimens—Eleanor Clarke; Butterflies—David Searle; Water animals from own aquarium—Tony Searle.

At the business meeting the chair was taken by the President (Emeritus Professor Gregg Wilson, O.B.E., M.A., D.Sc.), and among the visitors were representatives from the affiliated Clubs of Route, Cookstown, and Omagh.

During the evening the President handed the Club medal to A. M'I. Cleland, and later twenty-five new members were elected in the Senior section and three in the Junior.

The prizes were awarded as follows:—Living zoological exhibit—1, Tony Searle; 2, George Burns; 3, Dorothy Nelson; certificate, Owen Clarke. Living botanical exhibit—1, Felicity Bolton; 2, Dorothy and Edna Nelson. Sheila and Eileen Lord; certificate, Margaret Downer.

Natural history exhibit—1, Beatrice Searle and Noel Gregg; 2, Alistair and Robert Steven and David Searle. Certificates were given to Thomas Teuton, Brian Gillespie, Murphy Nodder, David Searle, Sam Kernaghan, Margaret Hanna, and Mary Glendinning.

THE INSECT MENACE.

At the opening meeting of the Winter Session, held in the Old Museum, on 21st November, 1933, at 8 p.m., the President, Emeritus Professor Gregg Wilson, D.Sc., M.R.I.A., delivered a lecture on the above subject. The chair was taken by Dr. R. Ll. Praeger, President of the Royal Irish Academy.

Dr. Wilson called attention to the extraordinary success of insects in the struggle for the world's food. That great group of animals was a very ancient one, and was still growing. Its individuals outnumbered all other land animals put together. It was actually claimed by competent authorities that the larger part of the animal matter existing on the lands of the globe was locked up in the bodies of insects; and that on the whole they were the most successful of all the forms of terrestrial animals.

Insects were undoubtedly rivals of man in the quest for food. And as the human population of the world was increasing rapidly this competition was becoming of increasing interest. Locusts were enormously destructive. One

swarm had been estimated to cover 2,000 square miles of territory—more than twice the area of County Down—and its weight had been put at nearly 43 million tons, though each locust had been taken as weighing only one-sixteenth of an ounce.

The everyday losses of the farmer resulting from insect attack were quite enough to call for serious study and constant watchfulness. In particular they ought to protect birds and other useful allies that helped to keep down the insects that threatened our food and other supplies. Time after time man had encouraged his rivals by failing to appreciate his friends; and so great plagues had developed.

Some insects were carriers of disease such as plague, typhus, typhoid, malaria, and yellow fever. *Anopheles claviger*, one of the most abundant species of local mosquito, was always a possible vehicle for the spreading of malaria. *Theobaldia*, a mosquito with striped legs and spotted wings, was our most vicious biter.

Though so many insects were rivals or actual enemies of man, others were invaluable allies. They supplied us with useful substances; they acted as scavengers throughout the country; they rendered all-important service in effecting pollination of both ornamental and edible plants; and they helped us by feeding on other insects that are injurious.

The President congratulated the Club on its continued usefulness. There could be no doubt as to its prosperity. Its numbers were increasing steadily and it was fulfilling its purpose. It had two great functions—the first, which some would call the higher, being to explore the country with a view to adding to knowledge of its plants and animals and rocks, etc. The Club had always produced workers who achieved distinction in this kind of service. But a second, to him no less important function, was to stimulate interest in the wonderful world in which we live. Such interest was open to all and was almost a necessary preliminary to the more ambitious work of the specialist.

BOTANICAL NIGHT.

At a meeting held in the Old Museum Building on Tuesday, 5th December, 1933, at 8 p.m., three short Botanical papers were read. Abstracts of two of them follow. The third was by C. S. Bailey, and his subject was "Notes on the History of Botany."

All three papers were most interesting and much appreciated by the large number of members present.

- (i) *Botanising in Rumania*, by Captain C. D. Chase.

A short account of a tour with the Leplay Society in August, 1933. The flora of the eastern and southern Carpathians is closely related to that of the Alps, but is not so rich in species. There are a few endemic plants and a few whose main distribution is south of the Danube. Speaking generally the flora of these mountains is not nearly so interesting as that of the Balkan Peninsula.

The lecturer mentioned the savage sheep dogs of the mountain pastures which may give an added interest to a solitary walk.

- (ii) *How I Began to Botanise*, by Rev. W. R. Megaw.

Mr. Megaw spoke of the "flower-knots" at the houses around his country home, and of the primitive rockeries furnished with Periwinkle, London Pride, and Creeping Jenny, in the days when the modern rock garden, with its varied selection of Alpines, was unknown.

The weeds of these gardens were, with a few exceptions, unknown and unnamed, and the challenge of these unwanted flowers started the speaker on his quest. This widened into the desire to know the floral life of the fields, glens, mountains, etc., not only of one particular locality, but of Ireland.

With the aid of a book purchased for a few pence, the young botanist set himself the pleasant task of becoming acquainted with every plant he met, grasses, sedges and ferns, as well as what were more distinctly called "flowers."

Then came the desire to study mosses and liverworts, when autumn cleared the fields of their flowers. This additional quest permitted field work in winter as well as in spring and summer, and so made the hobby one for the whole year round.

LANTERN NIGHT.

A meeting was held in the Old Museum, on 19th December, 1933, the President (Professor Gregg Wilson) being in the chair.

Lantern slides reproduced from photographs taken at the summer excursions were thrown on the screen. Many interesting details associated with their research during the season were described by Miss Sayers, Miss Dunlop, Dr. Loughridge, A. M'I. Cleland, A. A. Campbell, and J. Skillen.

PICTURE WRITING AND CONVERSING BY SIGNS.

An Archaeological evening was held in the Old Museum on 16th January, 1934, at 8 p.m., the President (Professor Gregg Wilson) being in the chair.

A vote of sympathy with the relatives of the late Dr. D'Evelyn and D. E. Lowry was passed in silence, the members standing.

J. Wilfrid Jackson, D.Sc., F.G.S., was unanimously elected an Honorary Member.

J. Skillen then proceeded with his paper on the subject of "Picture Writing and Conversing by Signs." He illustrated his paper by means of slides, then traced sign writing from its earliest stages until it had become the spoken word.

From the early sign painting of the Egyptians had risen the demotic in use in Egypt, until its conquest by Alexander the Great in B.C. 332. Slides giving examples of sign writing, hieroglyphics, and demotic were thrown on the screen and explained by the lecturer.

He next referred to the discovery of the key to the hieroglyphics and the use of the Rosetta Stone in finally rendering them intelligible.

The lecturer then dealt with the pictographs of the Red Indians, and two stories in Indian pictorial writing were shown and the reading of them and their characters explained. Some of the most interesting slides were those of the Connor Oghams discovered in a souterrain by the Dean of Down, when rector of Connor. Masons' marks on old abbeys and cathedrals were illustrated, examples found at Greyabbey being specially mentioned.

He concluded with a few words on the sign talk of America, which is still used to-day. For the sign talk, he said, there was a vocabulary of over 4,500 pictographs published, and it was claimed that over 100,000 people in America used it, as it was an Esperanto to diverse tribes and tongues.

At the conclusion, Mr. E. R. Collins, of the Deaf and Dumb Mission, College Square North, gave a demonstration of finger speaking as used by deaf-mutes to-day.

NOTES ON BOTANICAL TRAVEL.

A meeting was held in the Old Museum on 6th February, 1934, at 8 p.m. The President (Professor Gregg Wilson) was in the chair, and Dr. R. Ll. Praeger, President of the Royal Irish Academy, delivered a lecture on the above subject to a very appreciative audience.

Dr. Praeger said that the wild flowers of Ireland could not be understood unless the student had knowledge of plants of other countries. Ireland itself was peculiar in many respects in that it was the warmest place in the world in such a high latitude. This had a wonderful effect on its vegetation, giving it beauty comparable with that of any other part of the globe. Other places in the same latitude, such as Labrador, had winters infinitely more severe than that experienced in Northern Ireland.

The lecturer referred to the peculiarities of different countries, and said that Scandinavia was a forest country with little vegetation, while Lapland, which was inside the Arctic circle, had a wonderful display of wild flowers during the summer months. Switzerland had an enormous variety of plants, and the Canary Islands, which lay half-way between Ireland and the Equator, was almost tropical in places.

R. J. Welch and Colonel R. G. Berry spoke to the lecture.

AN ULSTER FOLK RECITAL.

At a meeting held in the Old Museum on 20th February, 1934, at 8 p.m., the President (Professor Gregg Wilson) being in the chair, Mr. Samuel Henry, F.R.S.A.I., a member of the Route Naturalists' Field Club, provided an interesting evening for the Club. With slides, in a friendly chat rather than a lecture, and with song, fiddle and tin whistle, he recreated for his audience the loveliness of Ulster woods, mountains, and sea coast, and the intimate life of man and birds which inhabit them.

"Woodland, moorland, and sea," Mr. Henry said, would be the order of his going. He asked his audience to accompany him to the woods of Mountsandal, Coleraine, and Mr. A. R. Hogg threw a few pictures of these woods on the screen, while Mr. Henry took up his fiddle and sang their praise in an old song which Mrs. Houston, of Coleraine, had learned from a wandering fiddler 40 years ago.

Mr. Henry made his hearers acquainted with some of the inhabitants of Mountsandal—a titmouse with her family of 15 youngsters; an owl, "a bird remarkable enough for a lecture to itself;" a hawk, all photographed by the lecturer in Mountsandal woods.

The old fortification of the Royal Palace of Drum-nabhan was the next halting place. Having discussed the fort from its scientific aspect, Mr. Henry told the story of its conqueror, who begged the Princess to marry him. Pointing to the burning fort she replied: "When the house of Rory More is going up in flames, there is nothing more to live for," and threw herself in the river.

The salmon fishery at Portstewart recalled the old legend that the Bann and the Bush were full of salmon in the year that Christ was born. Later on there was another legend connecting Ulster and the life of Christ. This is the story of the wrestler of Dunseverick, who having overcome all his competitors in Ireland went to England, from there to Rome with the Tenth Legion, and with them to Jerusalem. At Jerusalem he was present at the Crucifixion. He returned to Dunseverick a broken-hearted man, and told of how he had seen a terrible sight, the Son of God put to death.

Mr. Henry moved on through Draperstown and Dungiven, along the west side of Lough Neagh and northward to the sea, along the coast and across to, first, the Skerries, later to Rathlin. Not a single tourist, motor car, golf ball, or hotel was even suggested, but the life of birds and men who are unaffected still by these modernities.

The birds photographed were, some of them, so wild that they had no fear of man. Rosie of Rathlin and "Pat the Climber" have no fear of the great rocks which fall sheer into the sea. At Murlough Mr. Henry found a grey seal basking in the sunshine and secured a splendid photograph.

The sow and her litter called forth one of Mr. Henry's excellent stories, which made his hearers acquainted with the people whom he had met. William and his wife were photographed with the sow and the litter.

"It was terrible kind of you," said the lady of the house. "You only came for the scenery of the sow, and you took William and me as well."

A hearty and unanimous vote of thanks to the lecturer was passed on the motion of Rev. W. R. Megaw, seconded by R. J. Welch.

GEOLOGICAL NIGHT.

At this meeting, held in the Old Museum Building on 6th March, 1934, at 8 p.m., A. M'I. Cleland read the two papers of which abstracts follow.

SOME NOTES ON LOUGH NEAGH.

The first part of this paper was devoted to a detailed description of the topography of the Lough, which the lecturer illustrated by a number of lantern views.

He then showed a series of charts and sections of the Lough, based on the Admiralty survey made in 1835 by Lieut. T. G. Graves, R.N., F.R.A.S., F.G.S., and with the aid of these pointed out the most interesting features of the Lough bottom.

He first drew attention to the remarkable ledge which runs right round the Lough, varying in width from a few yards to over half a mile. It is a ledge and not a shallow, with an average depth of 10 feet, and everywhere suddenly drops to a much greater depth, the drop in some places reaching 28 feet.

A lower and second ledge is present, on the western side of the Lough, 9 miles in length, with an extreme width of $1\frac{3}{4}$ miles. This ledge also suddenly deepens, the maximum drop being 48 feet.

Another interesting feature the charts and sections showed was the general flatness of the greater portion of the under surface of the Lough. An area was indicated, about 9 miles by 6 miles, where the depth of water ranged between 40 and 49 feet.

By means of another sketch, attention was drawn to a further interesting feature of the Lough. This was the deep channel which, beginning at a point between Kiltagh Point and Langford Lodge, reaches a maximum depth of 102 feet. This channel is about 9 miles long.

The lecturer pointed out that the formation of Lough Neagh was not due to: (a) The accumulation of a dam or barrier; (b) Erosion; (c) Differential earth movement. Nor could it be considered to be a crater lake.

The lecturer then mentioned Sir A. Geikie's theory which postulated the suggestion that Lough Neagh was formed by subsidence in the pre-Glacial period. This theory is based on the existence of the circumferential ledge already noted, and the presence of the deep channel at the N.W. end of the Lough.

The lecturer fully agreed with the theory and pointed out that the subsidence was probably sudden.

If this theory be the correct one it fully substantiates the common basis of the various legends connected with Lough Neagh, which all attribute a sudden and disastrous formation of this large sheet of water, the largest freshwater lake in the British Isles.

THE INDURATION OF ROCKS BY HEAT.

In this paper the lecturer drew attention to the influence exerted by heat from basaltic flows and dykes on the rocks of Co. Antrim.

He pointed out how slight such influences have been on chalk, marl, or sandstone, and then went on to consider whether the induration of the Liassic shales of Portrush was due to heat or to chemical agencies.

In the lecturer's opinion the Liassic shales at Portrush were indurated by chemical means and not by heat effect. He based his opinion partly on the present nature of the rock, and partly on the behaviour of normal Liassic shale under different degrees of heat. He had submitted samples of shale to soaking heat for several hours at temperatures varying from 700 degs. F. to 2,000 degs. F. In no case did the shale assume the slightest resemblance to the indurated shale at Portrush.

The lecturer suggested, and gave reasons for his conclusions, that the Portrush shales were indurated by chemical agencies, due to percolating waters from the overlying basalts.

His conclusions were not generally accepted by the members, but since the paper was read he has found strong confirmatory evidence of his theory in the Liassic beds sometimes exposed at low water in Whitepark Bay, near Ballintoy.

Here two basaltic dykes penetrate the shales, the latter being but slightly altered at their point of contact. This alteration is not greater than one would expect to find where dykes penetrate chalk, marl, or sandstone. It does not anywhere approach, in either extent or degree of alteration, to the changes found in the Portrush shales.

STRANGE ANIMALS OF AUSTRALIA.

A meeting was held in the Old Museum Building on 20th March, 1934, at 8 p.m. The President (Professor Gregg Wilson) was in the chair, when Professor T. Thomson Flynn, D.Sc., gave a lecture on the above subject to a very large and appreciative audience.

Dr. Flynn showed many and beautiful slides of Australian animals, paying most attention to the marsupials, and gave interesting details of their special modes of life.

At the close those speaking to the lecture, in addition to the Chairman, were Colonel F. Crawford and A. H. Davison.

“ THE STEWART LETTERS, 1883-95.”

A meeting was held in the Old Museum Building on 27th March, 1934, at 8 p.m. The President (Professor Gregg Wilson) was in the chair.

By special request J. A. S. Stendall repeated his lecture on “ The Letters of Samuel Alexander Stewart,” previously delivered before the Belfast Natural History and Philosophical Society. Much new information concerning Ulster’s best known botanist, long connected with the Club, was imparted, which all members will hope to see printed in the *Proceedings* of the sister society.

At the close Miss Sayers, A. M’I. Cleland, and J. Skillen asked questions, or spoke to the paper.

EXPLORATION OF BALLINTOY CAVES.

At a meeting held in the Old Museum Building on 10th April, 1934, at 8 p.m., the chair being taken by the President (Professor Gregg Wilson), Dr. J. Wilfrid Jackson, of Manchester Museum, delivered a lecture on the above subject to a large and appreciative audience.

Dr. Jackson said that the investigations were carried out by permission of the landowner, Mr. Francis M’Shane, and by means of a special grant from Belfast Corporation, who were to be thanked for their support in furthering that and other archaeological researches in Northern Ireland. The work of supervising was shared by Miss M. Gaffikin (Belfast), Mrs. Anderson (Downpatrick), and Professor J. K. Charlesworth (Queen’s University). Both caves (Park and Potter) yielded ample evidence of early occupation by man, and many important finds were made.

Excavations outside the closed entrance to Potters’ Cave revealed several occupation layers containing an abundance of pottery in fragments, mammal and fish remains, shells of limpets and other edible species, implements of bone and stag-antler, and some flint knives and flakes. The potsherds from this stratified and undisturbed site added materially to the knowledge of prehistoric times in Ireland.

The pottery showed some variety in style and paste, much of it consisting of fragments of base and rim of almost straight-sided, or slightly bulging, domestic cooking pots with flattened rims occasionally ornamented by cuts, notches, or thumbprints.

All the pottery was handmade, without the aid of a wheel, and appeared to have been constructed from bases of flat cakes of clay to which the walls were added by successive bands or coils. That this was the method of construction in some cases was inferred from the number of separated bases, broken from the sides at the weakest place.

These encrusted urns were thought to have been evolved by folk of Northern Britain (circa 800-500 B.C.) in contact with the Late Bronze Age users of pottery with applied decoration, who had come from overseas and occupied the lowland zone of Britain.

In a number of the Ballintoy sherds there is a small perforation in the wall a little below the rim, and apparently on one side only of the pot. This appears to have been made before firing, when the paste was soft. Its true purpose is unknown, but one suggestion put forward was that it served as a steam-hole.

In addition to the straight-sided vessels a few sherds of hard-baked sandy pottery with spangles of mica and showing a distinct neck and shoulder with punctate ornament were found near the surface. These were slightly younger than the rest and resembled some of the pottery from All Comings Cross (Wilts), an Early Iron Age occupation site, regarded as Final Hallstatt (or Jogassian) dated about 500 B.C.

The Ballintoy cave pottery possessed certain features reminiscent of the late Bronze Age, and also showed affinities with that of the Hallstatt period, an early division of the European Iron Age, dated about 1000 to 500 or 400 B.C. There was a close resemblance of some of the sherds to examples found in Scotland, and especially to the Hallstatt pottery found at Scarborough, where its presence was thought to be due to the earliest Celtic invaders in these islands some centuries before 400 B.C., the culture having reached Britain by way of the Lower Rhine and the Netherlands.

The Hallstatt civilisation appears to be practically unknown in Ireland, though certain metal objects of the Hallstatt type have been found. Those latter might have been brought through trade relations or by occasional settlements of foreigners among the aboriginal pre-Celtic people and changes in ideas concerning the technique in pottery-making that have filtered into the country in the same way without an actual invasion of the Hallstatt people.

Large numbers of bones had been found in the course of the digging at the Ballintoy caves. These belonged mainly to small oxen, sheep, and pig, together with a few belonging to horse, and there were some antlers of red deer. Most of the bones had been split or broken, in some cases no doubt to make bone implements, but in most instances in order to extract the marrow. These bones were the remains of animals slaughtered for food. Heaps of shell-fish were also found: these belonged to common limpets of large size, and two species of periwinkle. The bones and jaws of cod and other fish were also met with, all showing that the cave-dwellers were not short of food.

Among the bone implements were some piercers and needles, including a fine-polished example, two inches long, with a perfectly formed eye. There was also an interesting portion of a double-ended and ornamented bone comb.



Photo: J. W. Jackson.

Clay Figurine found at level O2.

Height 4 ins.

By courtesy of *The Irish Naturalists' Journal*.

The most remarkable and unique find at Potter's Cave was a roughly-fashioned female figurine in baked clay agreeing in paste with some of the sherds. This, the first discovery of its kind for Ireland, resembles a Mother Goddess. It is incomplete, being four inches high and two and threequarter inches across the shoulders. The ears, eyes, and mouth are indicated by holes made in the clay; there is also a round hole in the centre of the forehead. The arms are broken and the legs missing. The

breasts are well formed, and certain resemblances exist between the figure and the statue menhir at St. Martin de

la Bellouse, Guernsey. Clay figures of a goddess have been found in the Urnfield cultures of Hungary.

An interesting tanged flint point of the Bann type was found at a depth of about six feet from the surface. It differs in colour and patination from the other flints found at that cave, and might be a derived specimen. It resembles some examples from Culbane, Bann Valley, figured by the lecturer in 1909.

Well below the Early Iron Age occupation of Potters' Cave some flint flakes were found in association with a charcoal layer, limpet shells, and a few animal bones. The date of this early occupation was not yet clear. The raised-beach deposits were not reached, though excavations were made to a depth of over 10 feet.

Miss Gaffikin, R. J. Welch, J. A. S. Stendall, Colonel Berry and H. C. Lawlor took part in the discussion which followed.

ZOOLOGY DEMONSTRATIONS.

A desirable innovation was presented by the President (Professor Gregg Wilson) when he gave a series of eight lecture-demonstrations on Zoology, from 27th November, 1933, to 19th March, 1934, to members of the Club, in the Zoological Lecture Theatre of Queen's University, by kind permission of the Vice-Chancellor (Sir Richard Livingstone) and the Professor of Zoology (Dr. T. Thomson Flynn). Forty members availed themselves of the opportunity to gain a working knowledge of the animal kingdom. To traverse the whole subject from amoeba to the mammals was a big undertaking in the space of eight evenings, but Professor Wilson's precision overcame all difficulties and an immense amount of desirable information was gleaned by the member-students. To add to the usefulness of the address from a Field Club point of view, various Members gave brief talks on methods of collecting.

ANNUAL MEETING.

The Annual Meeting was held in the Museum, College Square North, on Tuesday, 17th April, 1934, at 8 p.m., the President (Professor Gregg Wilson) in the chair. The following Reports were presented:—

ANNUAL REPORT.

It is with pleasure the Committee place before you the Seventy-first Annual Report of the Belfast Naturalists' Field Club, after a very successful year.

At the end of this period the membership stands as follows:—54 new members elected, 28 resigned or membership lapsed, 7 deceased. The total number of members on the senior roll now stands at 497, and on the junior roll 120, making a total of 617 members.

During the year the Omagh Field Club, founded and organised by Rev. E. M. Gumley, B.D., has been added to our affiliated societies, making now five in all. These affiliated Clubs are continuing to flourish and to increase in usefulness; they have a membership of 696, which, added to our membership, makes a grand total of 1,313 Field Naturalists in Northern Ireland.

As in past years several of our members, including our President (Professor Gregg Wilson), Miss W. J. Sayers, D. J. Carpenter, A. M'I. Cleland, G. C. Reilly, and W. M. Crawford travelled to the various districts where these Clubs operate and gave lectures. For their services in doing so the Committee's thanks are due.

The experiment of last year in holding a united conference was continued this year, meeting at Portballintrae from 29th September to 1st October.

It was decided to hold the next conference in Cookstown, on the invitation of the Tyrone Club, and to have a united week-end Excursion to North Louth at the end of May.

During the past winter a series of Demonstrations on Zoology was given by the President in the Queen's University, by the kind permission of the Vice-Chancellor and Professor Flynn. These demonstrations were most successful and the attendance up to the limit allowed. Mr. Stendall very efficiently acted as convener. It is hoped that a similar series, on some other branch of Natural Science, will be given next winter.

During the year your Committee held eleven meetings, and the attendances were as follows:—

C. R. Nodder	...	11	R. S. Lepper	...	8
A. A. Campbell	...	11	J. J. Hartley	...	7
Wm. Sweeney	...	11	Dr. Loughridge	...	7
J. A. S. Stendall	...	11	Miss Gaffikin	...	5
Professor Gregg Wilson	10		D. J. Carpenter	...	5
A. M'I. Cleland	...	10	J. Orr	...	5
W. M. Crawford	...	10	R. J. Welch	...	5
Miss W. J. Sayers	...	9	Captain C. D. Chase	...	4
Rev. W. R. Megaw	...	9	Robert Bell	...	1
A. H. Davison	...	8	W. G. Burns	...	1
Mrs. Nodder	...	8	Professor Charlesworth	1	

We deeply regret to report the death of several members whose names are given below, particularly S. A. Bennett, a former President and an Honorary Member, Dr. A. D'Evelyn, who was for almost forty years an active member of the Club and who, shortly before his death, conducted an excursion to the Ballymena district, David E. Lowry, also an old member, W. A. Traill, of the Giant's Causeway Tramway Co., the father of the Club, being 58 years a member, having joined in 1875, and the Rev. W. F. Johnston, Rostrevor, a Special Life Fellow of the Royal Entomological Society of London.

The Committee desire to thank the givers of prizes, who were as follows:—The President, C. R. Nodder, A. M'I. Cleland, W. M. Crawford, R. S. Lepper and G. C. Reilly.

The summer programme was carried out successfully, all the excursions, especially the evening excursions, being well attended, the following being the list:—

May 6th—Coleraine and District (Jointly with Route Club) (whole day).

May 19th to 21st—Joint Excursion to Mourne Mountains (two days).

June 3rd—Moira and Aghalee (half day).

June 13th (Tuesday)—Drum Bridge to Shaw's Bridge (evening).

June 17th—Tardree and Scawt Hill (half day).

June 24th—Newtowncrommelin (whole day).

June 27th (Tuesday)—Cultra and Hollywood (evening).

July 1st—Ballyhornan (half day).

12th July Holidays—Boyne and Blackwater Valleys (three days).

July 25th (Tuesday)—Whiteabbey to Macedon Point (evening).

July 29th—Carlingford (whole day).

August 1st (Tuesday)—Ligoniel to Glengormley (evening).

August 12th—Ballymena District (whole day).

August 19th—Castle Espie (half day).

September 9th—Sixtowns and Lough Patrick (whole day).

September 23rd—Woodburn Glen and Carrickfergus (half day).

October 7th—Fungus Foray to Belvoir Park (half day).

The Annual Conversazione was held in the Assembly Buildings on the 17th October, which was as fully successful as those held in the past. The exhibits were numerous and interesting, those of the Junior Division being of special excellence. The President handed over to A. M'I. Cleland the Club Medal which had been awarded to him for his scientific work.

The prizes won by the Junior Division members were also handed over to the winners by the President.

The lectures delivered during the Winter Session were as follows:—

- Nov. 21—Presidential Address: "The Insect Menace."
- Dec. 5—Botanical Evening. Papers by Captain Chase, Rev. W. R. Megaw and C. S. Bailey.
- „ 19—Lantern Evening. Slides of Summer Excursions.
- Jan. 16—Archaeological Evening. Paper by J. Skillen, "Sign Language."
- Feb. 6—"Notes of Botanical Travel," by Dr. R. Ll. Praeger.
- „ 20—"An Ulster Folk Recital," by S. Henry.
- Mar. 6—Geological Evening. Two short papers by A. M'I. Cleland.
- „ 20—"Strange Animals of Australia," by Professor Flynn.
- „ 27—"The Stewart Letters," by J. A. S. Stendall.
- April 10—"Exploration of Ballintoy Caves," by Dr. J. W. Jackson.
- „ 17—Annual Meeting.

All these winter lectures were well attended and in nearly every case illustrated by slides. At every meeting an interesting discussion followed the lecture.

It had long been considered desirable that there should be a badge for members; accordingly your Committee have had one prepared, which takes the form of the Club emblem done in bronze with blue enamel lettering, broach or stud attachment. Copies may be had from the Hon. Secretary, price 2/- each.

In conclusion, the Committee desire to express their high appreciation of the services given by Dr. Gregg Wilson while occupying the presidential chair. In addition to giving the demonstrations on Zoology he has been indefatigable in furthering the objects of the Club, and materially helped in the success of the year's working. They also desire to record their best thanks to the Press for reports of our excursions and meetings, and to the various

scientific societies who supplied copies of their *Proceedings*, and lastly our warm thanks to the following for kindness shown to us during our summer excursions:— Mr., Mrs. and Miss Nicholson, Balrath, Bury, Co. Meath; John Foley, Town Clerk, Navan; the late Patrick Flynn, of Dinanew, Co. Down; Captain Ker, Portavoe; Captain Traill, Ballylough; Mr. C. J. Agnew, Macedon; and Mr. and Mrs. Watson, Ballyarton.

JOSEPH SKILLEN, *Hon. Secretary.*

DECEASED MEMBERS.

Henry Adams.
S. A. Bennett.
A. M. D'Evelyn.
Victor G. Jennings.
Rev. W. F. Johnson.
D. E. Lowry.
W. A. Traill.

HON. LIBRARIAN'S REPORT.

The exchanges are regularly maintained. No addition has been made to the list during the year. Efforts to complete, where possible, the sets of *Proceedings* in the Museum Library, continue as in other years, and decided improvements have been effected.

The List of Exchanges will be found at page 269.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF THE RECORDING SECRETARY.

ANTIQUITIES.

The lists of Ancient Monuments in Counties Tyrone and Londonderry recommended by the Advisory Committee for protection have been drawn up and will soon be submitted to Government for approval.

It is hoped that it may be possible before long to begin an illustrated survey of such 17th, 18th and 19th century buildings in Northern Ireland as have special architectural or historic interest.

Eventually one would wish to see a comprehensive antiquarian survey for Northern Ireland, in a series of volumes, like those brought out by the Royal Commission on Ancient and Historical Monuments of Scotland,

EXCAVATIONS.

The year has been marked by two important excavations of very different types, organised and financed by the Belfast Municipal Museum.

The first was the investigation of two caves near Ballintoy, Co. Antrim, known as Park Cave and Potter's Cave, by J. Wilfrid Jackson, D.Sc., F.G.S., of Manchester Museum. Dr. Jackson was assisted by Miss M. Gaffikin and Mrs. Anderson, Professor J. K. Charlesworth and A. H. Davison.

A detailed preliminary report on the work by Dr. Jackson has appeared in *I.N.J.*, vol. 4, no. 12, November, 1933, and an important paper by him on a Mesolithic Tanged Flint Point of Bann Type, found at the entrance to a cave near Ballintoy, in the *I.N.J.*, vol. 4, no. 11, September, 1933. Further reports on the pottery and other finds are awaited with special interest.*

The other excavation was that of the Horned Cairn at Ballyalton, near Downpatrick, directed by those experienced excavators, O. Davies and E. Estyn Evans, with the assistance of other antiquaries.

FINDS.

Apart from objects found in the Ballintoy and Ballyalton investigations, the finds of this year are not of special interest. A few may be mentioned.

The late Dr. Alexander D'Evelyn discovered a very small but perfect dolmen close to a farm house at Ballyminstra, near Ahoghill, Co. Antrim, and conducted the B.N.F.C. to it last August.

The Bann River finds, on exhibition at the Municipal Museum, though 24 in number, are not so striking as those of previous years. They include:—

Stone:—Two polished hatchet heads, and a hammer stone.

Bronze:—A spearhead with part of a wooden spear in the socket, two swords (leaf shaped), a long dagger.

Iron:—A knife and an axe head.

The bronze ferrule of a crosier decorated in Manx style with a vertebra pattern, and with lozenge and key pattern.

Some further arrangement for closer supervision of finds in the Bann River seems most desirable.

*Since this was written Dr. Jackson has reported a most important find, that of a clay figurine of the "Mother Goddess," the first instance of its discovery in Ireland. See the *Antiquaries Journal*, April, 1933. "A clay figurine from Ballintoy Cave," by Dr. J. Wilfrid Jackson, F.G.S.

R. S. LEPPER, *Hon. Recording Secretary*.

REPORT OF BOTANICAL SECTION.

Forty-three members of the section have paid their subscriptions. There were three sectional excursions during the summer, all blessed with beautiful weather, and a Botanical evening on 5th December, at which three short and most varied and interesting papers were read:—"Botanising in Roumania," by Capt. Chase; "How I Started Botany," by Rev. W. R. Megaw; and "Notes on the History of Botany," by C. S. Bailey. On June 6th, at Bellevue Rock Gardens, there were 31 members present when Mr. Graham patiently answered all and every question put to him by enthusiastic gardeners. On August 26th, 26 members and friends climbed Slemish, on a half-day excursion, Dr. D'Evelyn giving the Secretary the benefit of his local knowledge. Owing to lack of time *Habenaria albida* was not found, but quantities of Devil's-bit Scabious (*Scabiosa succisa*), Figwort (*Scrophularia nodosa*), and Butterwort (*Pinguicula vulgaris*) were seen. The hedges were beautified by the scarlet fruit of the wild Guelder Rose (*Viburnum opulus*). On September 2nd, in spite of it being the day of the T.T. race, 11 members visited Portavoe, by kind permission of Captain Ker. At Orlock Point, Sea Beet (*Beta maritima*) and Hairy Willowherb (*Epilobium hirsutum*) were noted, and in Portavoe woods *Saxifraga geum*, Yellow Loosestrife (*Lysimachia vulgaris*), as well as the commoner Purple Loosestrife (*Lythrum salicaria*). In one part of the wood *Angelica sylvestris* was present in great abundance. *Rubus fruticosus* also being very plentiful, its juicy fruit proving most attractive. By close clinging to our garments the hooked fruits of Enchanter's Nightshade (*Circaea lutetiana*) gave us an object lesson in seed dispersal. It may be stated that the number present was in inverse proportion to the interest shown and the work done. On the Club excursion to Carlingford district on July 29th, the following plants were gathered:—Horned Poppy (*Glaucium luteum*), Sea Radish (*Raphanus maritimus*), Elecampane (*Inula helenium*), and Swine's Cress (*Senebiera coronopus*).

W. J. SAYERS, }
W. R. MEGAW, } *Hon Secretaries.*

REPORT OF GEOLOGICAL SECTION.

No regularly organised work has been undertaken by the Section during the Session, but the subject of Geology has been very much to the fore during several excursions.

On Saturday, 17th June, a strictly Geological Excursion was organised by J. J. Hartley and R. Bell, during

the course of which the rhyolite and pitchstone exposures at Sandy Braes and Tardree were visited, and several fine specimens brought back, which are now in the Municipal Museum. A halt was made near Scawt Hill, when J. J. Hartley explained in detail the interesting features of this remarkable volcanic exposure. Unfortunately time did not permit of a near approach to the hill. Kilwaughter chalk quarries, perhaps the largest in Co. Antrim, were also visited.

On Tuesday evening, 27th June, the members visited, under the guidance of D. J. Carpenter, the exposures of Permian strata to be seen at low water on the foreshore at Cultra, Co. Down.

On Saturday, 1st July, the members visited Ballyhornan Bay and Benderg Bay, when A. M'I. Cleland was able to secure four excellent photos of the most interesting exposures of Calereted Sands, Clays and Gravels to be seen at these points.

On Tuesday evening, 25th July, under the guidance of A. M'I. Cleland, the members visited the foreshore at Macedon Point, and examined the numerous exposures of Triassic marls and sandstones to be seen here at low water, penetrated by many basaltic dykes running in a general N.W.-S.E. direction. Among these are the famous Cross Dykes cutting each other at right angles, these dykes being a classic feature of the Antrim side of Belfast Lough. In addition many erratics were examined, among them a huge mass of dolerite known as "Ross's Rock," probably carried from the neighbourhood of Fair Head, of an estimated weight of 33 tons.

When the members visited Carlingford and Greenore on Saturday, 29th July, an opportunity was given of examining the extensive section of Raised Beach to be seen at the entrance to Carlingford Lough just short of Greenore.

On a subsequent visit to this Raised Beach on Friday, 1st September, A. M'I. Cleland found a number of masses of hardened peat, each enclosing a lump of much rolled and very fossiliferous Carboniferous Limestone.

On Saturday, 9th September, the members visited Owenreagh Hill, Co. Derry, under the efficient guidance of George Barnett. Here they were able to examine a very interesting dyke of hornblende porphyry, of which specimens were obtained. Also many erratics in greenstone and granite.

Following the visit to Kilwaughter chalk quarries on 17th June, A. M'I. Cleland examined these quarries on various dates from September to November, and obtained

several excellent photos of the many interesting old water courses so well exposed there. An account of these visits may possibly be made later.

In May, 1933, the attention of A. M'I. Cleland was drawn to an exposure of White Trap or Basalt revealed during street widening operations below "The Grove," Shore Road. Of this dyke he was able to obtain samples (from which a micro. section was afterwards prepared). Later this dyke was examined in detail by J. J. Hartley, who gave the result of his investigations in a paper published in the *I.N.J.* in January, 1934 (vol. 5, p. 12).

NOTE.—This exposure is now covered and is no longer accessible. The record in the *I.N.J.* is, therefore, another instance of the benefit to science of such a Society as the B.N.F.C.

On the 6th March, 1934, A. M'I. Cleland presented two short papers to the Club. One on "The Induration of Rocks by Heat," and the second "Some Notes on Lough Neagh."

A. M'I. CLELAND, } *Hon. Secretaries.*
J. J. HARTLEY, }

REPORT OF ZOOLOGICAL SECTION.

Two excursions were held during the Summer Session, and there was a fair attendance at each. The first excursion was held on 10th June to Portmuck and Muck Island. After a search for fossils in the Liassic beds at Portmuck, the party proceeded to Muck Island where the coleopterists and collectors of mosquito larvae immediately got busy.

The great attraction, however, was the bird life of the island. It is the breeding place of a large colony of Herring Gulls, and nests with eggs and young were plentiful, while the ledges of the cliffs were occupied by serried rows of Guillemots and Razorbills. A pair of Ravens were observed, and several nests of Red-breasted Mergansers were found.

The second excursion was held on the 16th September to Strangford Lough. At Ringhaddy, motor boats were kindly placed at the disposal of the party by Drs. Unsworth and Graham, and visits were paid to Limestone Rock and Dunnyneill Island. A representative collection of sea shore animals was made, including the large white *Trochus*. In the glacial drift on the Islands numbers of magnesian limestone blocks were noted.

J. S. LOUGHRIDGE, } *Hon. Secretaries.*
JAMES ORR, }

REPORT OF ARCHAEOLOGICAL SECTION.

The Section held three field meetings. The first, on 22nd July, was at Ardglass. After examining an extensive souterrain in the parish of Ballee, the party proceeded to "The New Works" in the town. The original purpose of these buildings, traders' stores or guardhouses, and their fortunes in later years, were explained. By courtesy of the Golf Club and the Rev. Jasper Robinson and Mrs. Robinson, "Ardglass Castle" was inspected, and its architectural features pointed out. Following a brief call at Jordan's Castle, the old church of Ardtole was visited, where J. Skillen told all that is known of its history.

On 5th August, the Section visited Loughinisland district. The first halt was at the ruins of Clough Castle, probably an Anglo-Norman fortress built to guard the line of communication between Downpatrick and Dundrum. The legendary lore connected with the ancient rath on which the Castle was erected was recounted by Colonel Berry. The party then examined an exceptionally large ring-fort, with a deep fosse, in the townland of Dinanew. Proceeding to Loughinisland, the ruins of the three churches on the island were inspected, and their history, as far as known, explained. The final halt was at the old Buck's Head Inn, where the associations of the place with the insurrectionary movements of 1798 and 1803 were detailed.

The summer session of the Section was closed by a ramble round "Old Belfast" on 16th September, under the guidance of J. Skillen, who had the assistance of the late Mr. D. A. Fee, J.P., and Mr. Henry French at the old Clifton Street graveyard. The party, to the number of over thirty, afterwards had tea together in the Locksley Hall, when a very pleasant social hour was spent, and various matters of interest to the Section were discussed.

An ever-increasing interest in the Section is evidenced by the large attendances at the field meetings, and by the accession of sixteen new members during the year.

A. ALBERT CAMPBELL,	}	<i>Hon. Secretaries,</i>
MARY GAFFIKIN,		

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

During the past year interesting and useful work has been done by the Survey of Antiquities in Northern Ireland.

The work of classifying and indexing the existing 562 Ordnance Survey Records for Co. Down has been finished and work has begun on Co. Tyrone. Thanks are due to Dr. Chart and the staff of the Public Record Office for their kind assistance in this work.

There are now 32 voluntary workers on the list, and the following contributions have been received from them:—

	Photographs.	Plans.	Reports.
Standing Stones	20	—	5
Dolmens	15	1	4
Stone Circles	3	—	2
Cairns	41	4	4
Raths and Cashels	33	6	29
Churches	38	—	3
Souterrains	—	—	2
Castles	51	—	—
Round Towers	19	—	—
Crannogs	—	—	36
Other Antiquities	43	—	16
<hr/> Total	<hr/> 263	<hr/> 11	<hr/> 101
<hr/> Total (including previous years)	<hr/> 455	<hr/> 52	<hr/> 215

It is to be hoped that members of the Belfast Naturalists' Field Club will continue to take an active interest in the Survey of Antiquities so that good work may be done; photographs and plans, as well as descriptive reports, are especially important.

M. GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

The number of Junior Members on the list is 120. During the year 10 members have been transferred to the senior list, 93 have been struck off for non-payment of subscriptions, 9 have resigned, and 12 new members have been elected.

The Junior Division Committee met four times, one of these meetings being called and held by the Junior committeemen themselves to arrange excursions during the enforced absence of the Secretary.

We are informed by the Youth Hostel Association of Northern Ireland that to encourage youthful naturalists to work in the countryside it has arranged to allow the use of its hostels to parties of children in charge of an adult member of the Association at the charge of sixpence a night for each child and without membership fee being required.

The following excursions were held during the year:—

1933.

Wednesday, April 12th—Municipal Museum, talks on zoology and botany.

Saturday, May 13th—Bellevue Zoo. Conductor, Dr. R. H. Hunter.

Saturday, May 20th—Carnmoney Hill Quarry. Conductor, Robert Bell.

Saturday, August 19th—Zoology, Orlock Point. Conductor, Ranald MacDonald.

Saturday, August 26th — Geology, Scrabo. Conductor, Robert Bell.

Saturday, September 9th—Carrickfergus. Conductor, Ranald MacDonald.

Saturday, September 30th — Larne, botany and geology. Conductor, E. N. Carrothers.

Saturday, October 7th—Fungus Foray.

Saturday, October 14th—Lagan, zoology and botany. Conductors, Professor Gregg Wilson, Miss M. Rea, E. N. Carrothers.

Tuesday, October 17th—Conversazione.

Saturday, October 21st—Week-end at Slievenaman Youth Hostel.

Saturday, October 28th — Week-end at Straidkilly Youth Hostel.

1934.

Wednesday, February 14th—Finlay's Soap and Candle Works, followed by talk on Linen Production by Mr. G. O. Searle, B.Sc.

W. NODDER, *Hon. Secretary.*

An amendment to Rule III, reducing the subscription for the current year for members elected at the Convezazione Meeting, was passed. Twenty-three new members were elected.

The following office-bearers were elected for the Session 1934-35:—President, C. R. Nodder; Vice-President, Joseph Skillen; Hon. Secretaries, Joseph Skillen and William Sweeney; Hon. Treasurer, Robert G. Henderson; Hon. Librarian, W. M. Crawford; Hon. Recording Secretary, J. A. S. Stendall; Hon. Secretaries of Sections—Botanical, Captain C. D. Chase and Miss Kathleen Bourke; Geological, A. M'I. Cleland and J. J. Hartley; Zoological, J. S. Loughridge and James Orr; Archaeological, Miss Mary Gaffikin and A. Albert Campbell; Hon. Secretary Junior Division, Mrs. C. R. Nodder; Ordinary Members of Committee (retire 1935), Rev. W. R. Megaw, R. S. Lepper and George C. Reilly; (retire 1936), D. J. Carpenter, Professor J. Kaye Charlesworth and R. J. Welch; (retire 1937), Miss W. J. Sayers, A. H. Davison and Professor Gregg Wilson.

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. { No award.
- 1930. {
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.

Alexander M'Ivor Cleland joined the Club in 1894 and can now be ranked among its oldest members. He has served for many years as a member of Committee, being elected Vice-President in 1917, and President in 1918, which office he held for two years. From 1919 to 1922 he filled the office of Honorary Secretary.

During the whole time of his connection with the Club, Mr. Cleland has been a zealous worker in the Field, especially in the pursuit of knowledge relating to the geology of Northern Ireland, and has contributed many important papers to the Club's *Proceedings* and to the *Irish Naturalists' Journal* thereon.

His researches have taken him into out-of-the-way corners of our district, and have led to the discovery of many geological problems, which he has always attempted to elucidate, his conclusions most frequently meeting with the full approval of co-workers.

As a nature photographer, especially of geological subjects, Mr. Cleland excels.

He has also given to the Club the benefit of his researches in geology, as well as in other branches of Field Club activity, in the form of lectures, invariably illustrated by photographic slides of his own taking and making.

As a collector of geological specimens, Mr. Cleland has invariably shown great discrimination, and has considerably added to the instructional value of the scientific collections in our Municipal Museum and in Queen's University by his donations.

One of Mr. Cleland's characteristics is tenacity of purpose, which, combined with an innate good nature, helpfulness, and ready approval of the work of others, has made him a worker whom the Club may well and truly honour.

LIST OF EXCHANGING SOCIETIES.

1932-33. 1933-34.

—	—	Barrow-in-Furness—Naturalists' F.C. and Lit. and Sc. Association.
1	1	Belfast—Committee of Public Museums and Art Gallery.
1	1	Committee of Public Libraries.
1	1	N.H. and Phil. Society.
—	—	Presbyterian Historical Society of Ireland.
1	—	Berlin—Zoologisches Museum der Universität.
1	1	Birmingham—N.H. and Phil. Society.
1	—	Bournemouth—Natural Science Society.
1	1	Brighton and Hove—N.H. and Phil. Society.
1	1	Bristol—Naturalists' Society.
1	—	Brussels—Musée Royal d'Hist. Nat.
1	—	Buteshire—N.H. Society.
1	1	Caradoc and Severn Valley—Field Club.
1	1	Cardiff—Naturalists' Society.
—	1	Carlisle—Natural History Society.
—	—	Chester—Society of Nat. Sc., Lit. and Art.
1	1	Down and Connor—Historical Society.
1	1	Dublin—N.F.C.
1	1	Royal Irish Academy.
1	1	Royal Society of Antiquaries, Ireland.
1	—	Royal Zoological Society of Ireland.
1	—	Dumfriesshire and Galloway—Natural History and Antiquarian Society.
—	1	Dundalk—County Louth Archaeological Journal.
1	1	Eastbourne—N.H., Photographic and Lit. Society.
1	1	Edinburgh—Geological Society.
1	1	Essex—Field Club.

1932-33. 1933-34.

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| 1 | 1 | Eton College—Natural History Society. |
| 1 | 1 | Frankfort—Senckenbergische Bibliothek. |
| 1 | — | Glasgow—Royal Philosophical Society. |
| 1 | 1 | Glasgow and Andersonian Natural History and
Microscopical Society. |
| 1 | 1 | Guernsey—La Société Guernésiaise. |
| 1 | 1 | Halifax, Nova Scotia—Institute of Science. |
| 1 | — | Hertfordshire—N.H. Society and F.C. |
| — | — | Isle of Man—N.H. and Antiquarian Society. |
| 1 | — | Isle of Wight—Natural History Society. |
| 1 | 1 | Leeds—Philosophical and Literary Society. |
| 1 | 1 | Leicester—Lit. and Phil. Society. |
| 1 | — | Leyden—Rijks Ethnographisch Museum. |
| 1 | — | Liverpool—Geological Society. |
| 1 | — | Naturalists' Field Club. |
| 1 | — | Llandudno, Colwyn Bay and District — Field
Club. |
| 1 | 1 | London—British Association. |
| — | — | British Museum. |
| 1 | 1 | Geologists' Association. |
| 1 | 1 | Linnean Society. |
| 1 | 1 | Natural History Society. |
| — | — | Manchester—Geological Association. |
| 1 | 1 | Lit. and Phil. Society. |
| — | — | Microscopical Society. |
| 1 | 1 | Marlborough College—Natural History Society. |
| 1 | 1 | Mexico—Instituto de Biología. |
| 1 | — | Newcastle-upon-Tyne—Natural History Society
of Northumberland, Durham and
Newcastle-upon-Tyne. |
| 1 | 1 | Norfolk and Norwich—Naturalists' Society. |
| 1 | 1 | North Staffordshire—Field Club. |
| 1 | 1 | Northern Naturalists' Union. |
| 1 | 1 | Oxford—Ashmolean Natural History Society. |
| 1 | 1 | Perthshire—Society of Natural Science. |
| 1 | — | Plymouth Institution and Devon and Corn-
wall N.H. Soc. |
| — | 1 | Stavanger—Staats Museum. |

1932-33. 1933-34.

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| 1 | 1 | Swansea—Scientific and Field Naturalists' Society. |
| 1 | 1 | Toronto—Royal Canadian Institute. |
| 1 | 1 | Torquay—Natural History Society. |

U.S.A.

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| 1 | — | Boston, Mass.—Society of Natural History. |
| — | 1 | Chicago—Academy of Sciences. |
| 1 | 1 | Field Museum of Natural History. |
| 1 | — | John Crerar Library. |
| 1 | 1 | Cincinnati—Lloyd Library. |
| 1 | 1 | Madison, Wis.—Wisconsin Academy of Sciences, Arts and Letters. |
| 1 | 1 | Milwaukee, Wis.—Public Museum. |
| — | 1 | New York, N.Y.—Academy of Science. |
| 1 | 1 | Philadelphia—Academy of Natural Sciences. |
| 1 | — | Portland, Maine—Society of Nat. History. |
| 1 | — | Rochester, N.Y.—Academy of Science. |
| 1 | — | St. Louis, Mo.—Academy of Sciences. |
| 1 | 1 | Missouri Botanical Garden. |
| 1 | 1 | San Diego, Cal.—Society of Natural History. |
| 1 | 1 | San Francisco, Cal.—California Academy of Sciences. |
| 1 | — | Staten Island, N.Y.—Institute of Arts and Sciences. |
| — | — | Tuft's College, Mass.—Eaton Memorial Library. |
| 1 | 1 | Washington—U.S. Geological Survey. |
| 1 | 1 | Government Printing Works. |
| 1 | 1 | National Museum. |
| 1 | 1 | Smithsonian Institution. |

Dr.

Hon. Treasurer's Account for the Year ending 31st March, 1934.

Cr.

Balance from year 1932-33	£2	1	3	Printing and Stationery	£68	5	4
Subscriptions received, including Arrears:—				Postage	44	13	11
463 at 6/-	138	18	0	Expenses of Conversazione	13	8	8
1 at 5/-	0	5	0	Hire of Museum Rooms	18	0	0
Subscriptions paid in advance for year 1934-35:—				Hire of Lantern	3	0	0
24 at 6/-	7	4	0	Expenses of Junior Division	12	0	0
44 Entrance Fees at 5/-	11	0	0	Cost of Senior Badges	15	4	2
Subscriptions received from Juniors	3	3	0	Loss on Excursion to Ligoniel	0	15	0
Sale of Junior Badges	0	10	10	Clerical Assistants	5	5	0
Sale of Senior Badges	4	10	0	Xmas Gratuity	0	10	0
Balance from Excursions	44	6	1	Affiliation Fee, <i>Irish Naturalists' Journal</i>	3	0	0
				Making Plates	1	15	9
				Advertising Account	1	12	6
				Incidental Expenses:— Engraving Medals,			
				Funeral Expenses, Luncheons, etc.	7	10	10
				Balance carried forward to next Account	16	17	0
					£211	18	2

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There remain in Hon. Treasurer's hands Junior Badges to the value of £2 13s 1d, and in Hon. Secretary's hands Senior Badges to the value of £10 14s 2d; also cash in hands of Hon. Secretary £2 6s 0d.

Audited and found correct.

27th April, 1934.

C. R. NODDER,
A. A. CAMPBELL.

RULES

OF THE

Belfast Naturalists' Field Club.

As amended at Annual Meeting held 17th April, 1934.

I.

That the Society be called "THE BELFAST NATURALISTS' FIELD CLUB."

II.

That the object of this Society be the practical study of Natural Science and Archaeology in Ireland.

III.

That the Club shall consist of Ordinary, Junior, Life, Corresponding, and Honorary Members. Not more than twenty-five Ordinary Members shall be elected half-yearly. Ordinary Members shall be proposed and seconded by two existing Members on a Nomination Form to be obtained from the Honorary Secretaries. These proposals shall come before the Committee of the Club, who shall vote by ballot for or against acceptance. The names of the accepted candidates shall be submitted for election half-yearly—at the Annual Meeting in April and the Annual Conversazione in October.

Ordinary Members shall pay annually a subscription of Six Shillings, and shall on election pay an Entrance Fee of Five Shillings. If elected at the autumn meeting, the subscription shall be half the ordinary Annual Subscription for the current year. Members who are twelve months in arrear in their subscriptions shall not receive any further circulars or other printed matter, and those who are two years in arrear shall cease to be members of the Club.

That the composition fee for Life Membership be Four Guineas.

Junior Members, who must be between the ages of ten and twenty-one years, shall form a Division of the Club, and may be elected at any meeting of the Club. Each member between the ages of ten and eighteen years shall be required to pay an Annual Subscription of One Shilling, and between the ages of eighteen and twenty-one years an Annual Subscription of Two Shillings and Sixpence.

On attaining their majority they shall become Ordinary Members without having to be elected or having to pay an Entrance Fee, but shall pay the Annual Membership Subscription of Six Shillings.

Junior Members shall receive printed matter of General Meetings of the Club at the discretion of the Honorary Secretary of the Junior Division, who shall be required to have obtained the consent of the lecturer or conductor of any Meeting before arranging for notices of such meeting to be sent to Junior Members. Junior Members shall not be entitled to receive Proceedings and Annual Reports of the Club. Junior Members shall not have power to vote, except within the Committee of the Junior Division. The Junior Division shall have a Committee composed of eight Members of the Club, five of whom may be Junior Members. The Chairman and Honorary Secretary of the Junior Division shall be annually appointed by the General

Committee. The Junior Division Committee shall report at each meeting of the General Committee through its own Honorary Secretary. The expenses of the Junior Division shall be a charge on general funds, and shall be regulated by the General Committee. Subscriptions shall be paid to the Honorary Treasurer of the Club.

IV.

That the Honorary and Corresponding Members shall consist of persons of eminence in Natural Science, or who shall have done some special service to the Club; that such Members may be nominated by any Member of the Club, and on being approved by the Committee, may be elected at any subsequent Meeting of the Club by a majority of the votes of the Members present. That not more than two Honorary Members be elected in any one year. That Corresponding Members be expected to communicate a paper once within every two years.

V.

That the Officers of the Club be annually elected and consist of a President, Vice-President, Treasurer, Librarian, one or two Secretaries, and a Recording Secretary, together with the Secretaries of the various Sections of the Club and Honorary Secretary of the Junior Division. That the office of President or that of Vice-President shall not be held by the same person for two years in succession. That the President, Vice-President, General Secretaries, and Treasurer be *ex-officio* members of Sub-Committees.

VI.

That the General Committee shall consist of the above-named officers with nine ordinary members of Committee, and shall hold at least eight meetings during the year; five persons to form a quorum.

That three ordinary members of Committee shall retire annually in order of seniority, those retiring being ineligible for re-election for one year. The retiring President, if not elected to a Section Secretaryship, shall be one of the three new ordinary members added to the Committee each year. Should any ordinary member of Committee fail to attend at least three of the Committee meetings held during the year his or her place may be considered vacant and other member elected to fill the position. No ordinary member of Committee shall hold the post of Secretary in any of the Sections. That in the event of a vacancy occurring in the General Committee a new member may be co-opted to fill such vacancy for the remainder of the year.

That nominations for ordinary members of Committee shall be sent in writing to the Secretaries on or before the 21st day of March in each year. That the privilege of nominating members of Committee shall be held by all Ordinary and Life Members of the Club. That the names of those members so nominated shall be published on the circular convening the Annual Meeting, at which the Ordinary Members of Committee shall be elected by ballot. That should the necessity arise the retiring members of Committee shall be balloted for.

VII.

The Committee may from year to year appoint Sectional Secretaries and Committees, as may be considered desirable, to further original investigations in any one or more departments of the Club's work. Members desiring to join any Section shall pay an additional subscription of One Shilling to the Secretary of the Section (such

subscription to be used for the benefit of the Section). No financial responsibility to be incurred by any Sectional Secretary, Sectional Committee, or any Officer of the Club without the previous approval of the Club's Committee.

VIII.

That the members of the Club shall hold at least Six Field Meetings during the year, in the most interesting localities, for investigating the Natural History and Archaeology of Ireland. That the place of meeting be fixed by the Committee, and that five days' notice of each Excursion be communicated to Members by the Secretaries. That each of the Sectional Secretaries shall be made responsible for the running of one Regular Excursion, the programme to provide study in the subject appertaining to the Section, and that any additional Special Excursions shall be arranged by the Secretaries of the Sections concerned.

IX.

That regular Monthly Meetings be held during the Winter Session from November till April, inclusive, for the purpose of reading Papers; such Papers as far as possible to be original, and to treat of the Natural History and Archaeology of the district. That the Papers to be read be secured by a Standing Organising Committee, consisting of the Hon. Secs. of the Club, together with the Sectional Secretaries and a Chairman. That between the Regular Monthly Meetings of the Club Special Meetings open to all Members of the Club may be held, at which Papers of specialised interest would be discussed. That the Sectional Secretaries shall each be responsible for the providing of a programme for one Regular and one Special Meeting, one Regular and one Special Meeting to be arranged by the Hon. Secs. Any extra Meetings shall be arranged by the Organising Committee, if desired. That the programme for the Winter Session shall be completed by the date of its First Meeting and issued to all Members. That each notification announcing a Regular Meeting or Excursion shall also serve to notify Members of the next Special Meeting or Excursion.

X.

That the Committee shall, if they find it advisable, offer for competition Prizes for the best collection of scientific objects of the district; and the Committee may order the purchase of maps, or other scientific apparatus, and may carry on geological and archaeological searches or excavations, if deemed advisable, provided that the entire amount expended under this rule does not exceed the sum of £10 in any one year.

That the General Committee may offer from time to time such prize or prizes as they may deem desirable for competition among Schools in or near Belfast.

XI.

That the Annual Meeting be held during the month of April, when the Report of the Committee for the past year, and the Treasurer's Financial Statement shall be presented, the Committee and Officers elected, Bye-laws made and altered, and any proposed alterations in the general laws, of which a fortnight's notice shall have been given, in writing, to the Secretary or Secretaries, considered and decided upon. The Secretaries to give the Members due notice of each intended alteration.

XII.

Members of other Irish Field Clubs, residing temporarily or permanently in or near Belfast, may be enrolled as Members of the Club without election or entrance fee on production of a voucher of membership of another Club, and without subscription for the current year, on production of a receipt showing that such subscription has been paid to another Club. Failing the production of such receipt, the usual subscription for the current year to be paid to the Treasurer on enrolment. The names of Members so admitted to the Club to be published with the notice of meeting following the date of their enrolment.

XIII.

That, on the written requisition of twenty-five members, delivered to the Secretaries, an Extraordinary General Meeting may be called, to consider and decide upon the subject mentioned in such written requisition.

XIV.

That the Committee may be empowered to exchange publications and reports, and to extend the privilege of attending the Meetings and Excursions of the Belfast Naturalists' Field Club to Members of kindred societies, on similar privileges being accorded to its Members by such other societies.

RULES FOR THE CONDUCTING OF EXCURSIONS.

I. The excursion to be open to all Members, each one to have the privilege of introducing two friends. The time for commencing as many as possible of the Half-day Summer Excursions to be not prior to 2 p.m.

II. A Chairman to be elected as at ordinary meetings.

III. One of the Secretaries to act as Conductor, or, in the absence of both, a Member to be elected for that purpose.

IV. No change to be made in the programme, or extra expense incurred, except by the consent of the majority of the Members present.

V. No fees, gratuities, or other expenses to be paid except through the Conductor.

VI. Every Member or Visitor to have the accommodation assigned by the Conductor. Where accommodation is limited, consideration will be given to priority of application.

VII. Accommodation cannot be promised unless tickets are obtained before the time mentioned in the special circular.

VIII. Those who attend an excursion without previous notice will be liable to extra charge, if extra cost is incurred thereby.

IX. No intoxicating liquors to be provided at the expense of the Club.

LIST OF MEMBERS.

Any changes of address should be at once notified to the Honorary Secretary, Mr. Joseph Skillen, 25 Stranmillis Gardens, Belfast.

The dates prefixed to the names of Members signify year of election.

This List comprises the names of all persons who were Members at 31st March, 1934, and whose names are still on the Register of Membership at time of going to press. It does not include the names of deceased Members.

HONORARY MEMBERS.

1914. Charlesworth, Professor John K., D.Sc., Ph.D., F.G.S.,
Queen's University, Belfast.
1934. Jackson, J. Wilfrid, D.Sc., F.G.S., Manchester Museum,
Manchester.
1883. Praeger, R. Lloyd, D.Sc., B.A., B.E., M.R.I.A., 19 Fitzwilliam
Square, Dublin.
1890. Skillen, Joseph, 25 Stranmillis Gardens, Belfast.
1880. Welch, R. J., M.Sc., M.R.I.A., 49 Lonsdale Street, Belfast.

CORRESPONDING MEMBERS.

1932. Barnett, George, Sixtowns, Draperstown.
1926. Foster, Rev. Canon George, B.D., Strangford.
1929. The Hon. Secretary of the Limavady Naturalists' Field Club.
1929. do. do. Londonderry do. do.
1933. do. do. Omagh do. do.
1923. do. do. Route do. do.
1931. do. do. Tyrone do. do.

LIFE MEMBERS.

1926. Rohleder, Dr. Herbert P. T., Ntroako Concessions, Bekwai,
Ashanti.
1903. Stelfox, A. W., A.R.I.B.A., M.R.I.A., 14 Clareville Road,
Rathgar, Dublin.
1893. Wilson, Alex. G., J.P., M.R.I.A., London.

ORDINARY MEMBERS.

1923. Acheson, F. W., 37 Osborne Park.
1932. Adair, James, 3 Sunbury Avenue.
1932. Aird, Mrs. Annie, Clonsilla, Antrim Road.
1915. Aird, Hugh, 10 King Street.
1932. Albin, Herbert, 236 Ravenhill Road.
1917. Alderdice, R. Sinclair, 9 Wellington Place.
1922. Alexander, Kyle M., 30 Kelvin Parade.
1931. Anderson, F. G. H., M.A., Brooklands, Annadale Avenue.
1911. Anderson, Miss S. M., 4 Church View, Holywood.
1930. Anderson, Mrs. N., Ballyhosset, Downpatrick.
1930. Anderson, Miss W. F. E., 47 Brookhill Avenue.
1922. Andrews, J. D., Uraghmore, Comber.
1912. Andrews, Dr. Marion B., D.P.H., Orsett, Derryvolgie Avenue.

1927. Annesley, Frazer M., Kathmore, Portadown.
 1927. Armstrong, J. I., M.Sc., Imperial College of Science, South Kensington, London, S.W.7.
 1932. Asher, H. M. F., Campbell College.
 1927. Bailey, C. S., M.A., Methodist College.
 1927. Baker, George E., A.C.A., Lismacue, Belmont Road.
 1932. Bamford, Miss Ethné, Grosvenor, Galywally Park.
 1929. Beattie, Robert, Horse Shoe House, Ballysillan.
 1929. Beattie, Mrs. Robert, do. do.
 1924. Beatty, C., J.P., Ledlie Villa, Coalisland.
 1926. Beck, Miss Louise, M.Sc., 63 University Road.
 1923. Bell, David S., High Street, Carrickfergus.
 1932. Bell, Miss E. M., 23 Rugby Road.
 1928. Bell, N. G., The Hut, Whitehouse.
 1932. Bell, Philip S., B.L., R.M., Santander, Larne.
 1933. Benson, Ronald H., 29 Luxor Gardens.
 1933. Benson, Mrs. E. H., do.
 1924. Berry, Colonel R. G. J. J., M.R.I.A., F.R.S.A.I., Ardaluin, Newcastle, Co. Down.
 1930. Bingham, Mrs. A. B., 86 Redcar Street.
 1914. Bird, Miss, 5 Courtland Avenue, Norbury, S.W. 16.
 1928. Black, Dr. Josephine, 15 College Gardens.
 1929. Black, Thomas, 27 Agnes Street.
 1923. Blackwood, Reginald W. H., J.P., 24 University Square.
 1898. Blackwood, Miss Sarah, 6 College Green.
 1923. Blair, John T., 33 Ophir Gardens.
 1931. Bourke, Miss Kathleen M., B.Sc., 13 University Avenue.
 1893. Poyd, Miss E. S., Springfield Lodge, King's Road, Guernsey.
 1933. Boyd, Hugh A., M.A., Castle Street, Ballycastle.
 1922. Boyd, J. St. Clair, Chatsworth, 12 Malone Road.
 1923. Boyd, Miss K. St. Clair, do. do.
 1924. Boyd, Richard R., 2 Alliance Avenue.
 1916. Bradley, Miss L. T., Haypark House, Knock.
 1922. Brown, James R., M.A., B.Sc., 32 Maryville Park.
 1929. Brown, Miss Sarah, Craiglea, Holywood.
 1923. Brown, W. P., B.A., LL.B., Beresford House, Coleraine.
 1928. Buchanan, Miss Norah K., 1 Winston Gardens, Knock.
 1933. Burgoyne, Frank J. P., Linenhall Library.
 1929. Burns, Wm. G., 116 Walmer Street.
 1899. Burrowes, W. B., F.R.S.A.I., Ballynafeigh House.
 1933. Byrne, Miss Kathleen, 18 Florenceville Avenue.
 1927. Cairns, Hugh, B.Sc., Mountcairn, Comber.
 1932. Caldwell, R. D., Heatherton, Killagan P.O., Co. Antrim.
 1921. Campbell, A. Albert, F.R.S.A.I., Drumnaferrie, Rosetta Park.
 1921. Campbell, Mrs. A. Albert, do. do.
 1933. Campbell, Henry, 8 Onslow Gardens.
 1933. Campbell, Mrs. May, do.
 1927. Campbell, Miss H., Methodist College.
 1909. Campbell, John, Albert Brickworks, Carrickfergus.
 1929. Campbell, Langford, 65-67 Corporation Street.
 1891. Capper, J. Malcolm, 20 Bedford Street.
 1904. Carmody, The Very Rev. W. P., M.A., Downpatrick.
 1923. Carpenter, D. J., A.R.C.Sc.L., Sharnhen, Greenisland.
 1923. Carrothers, E. N., 7 Fitzwillian Street.
 1922. Cassidy, William, 14 Cadogan Park.
 1933. Chamberlain, R., B.A., 17 Kilhorne Gardens, Knock.

1928. Chambré, Mrs. N., Northland Row, Dungannon.
 1920. Chandler, W. P., 32 Sunningdale Park.
 1920. Chandler, Mrs. W. P., do.
 1926. Chase, Miss Bessie, 226 Stranmillis Road.
 1919. Chase, Captain C. D., M.C., M.A., Campbell College.
 1901. Cheyne, H. H., Roseneath, Bangor.
 1922. Christy, William, 8 Edenderry Gardens.
 1920. Churchill, Miss, 34 Hamilton Road, Bangor.
 1922. Clarke, George W., M.B.E., Notting Hill, Malone Road.
 1933. Clarke, John O., 2 Wellington Place.
 1932. Clarke, Miss Maud, 431 Lisburn Road.
 1931. Clarke, R. E. L., B.A., B.E., 42 Railway Street, Lisburn.
 1928. Cleeland, Mrs. Mabel, 13 Eglantine Gardens.
 1894. Cleland, Alex. M'I., 28 Green Road, Knock.
 1894. Cleland, Mrs. Annie, do. do.
 1890. Cleland, James, Brooklyn, Holywood.
 1932. Cody, Christopher, Cogry, Doagh.
 1921. Coey, Henry, Downshire Park, Carrickfergus.
 1922. Cole, Francis J., Ardmara, Greenisland.
 1928. Collins, Miss Nora, 42 Fitzwilliam Street.
 1923. Colton, John M., Lisbawn, Hawthornden Road.
 1932. Common, R. H., B.Sc., M.Agr., Tynemouth, Larne Harbour.
 1932. Connolly, A. E., Conalan, Church Road, Newtownbreda.
 1931. Convery, Thomas H., 53 Botanic Avenue.
 1931. Copeland, William J., Coolattin, Balmoral.
 1922. Corry, The Honourable Cecil, Castle Coole, Enniskillen.
 1932. Cowan, Samuel, 57 Corporation Street.
 1923. Cowden, William, 46 Cliftonpark Avenue.
 1906. Cowie, James, 394 Antrim Road.
 1928. Craig, Miss Isa, Willowpark, Whiteabbey.
 1933. Crawford, C. H., Rathdune, Downpatrick.
 1921. Crawford, Lieut.-Colonel F. H., C.B.E., Cloreen, Malone Road.
 1921. Crawford, W. M., B.A., F.R.E.S., F.Z.S., Orissa, Marlborough Park S.
 1932. Crawford, Mrs. Mary I., Orissa, Marlborough Park S.
 1922. Cromie, A. G., Seeburg, Castle Avenue.
 1922. Cromie, Miss Maude, do. do.
 1922. Crothers, Miss, 7 Easton Crescent.
 1915. Cunningham, Josias, R.N.V.R., M.B.O.U., Drinagh, Kensington Road.
 1932. Cunningham, Mrs. Isobel, Drinagh, Kensington Road.
 1930. Cunningham, Miss M., 67 King's Road, Knock.
 1913. Cunningham, Miss M. E., F.R.S.A.I., Glencairn Cottage, Larne.
 1884. Cunningham, Rt. Hon. Samuel, Fernhill.
 1924. Cupples, Miss Diana, 124 Malone Avenue.
 1933. Cupples, Miss Edith, 124 do.
 1921. Cuthbert, Rev. Alex., M.A., Rocklands Manse, Carrickfergus.
 1924. Dallas, Miss, 2 Bloomfield Gardens.
 1923. Davin, Miss Adelaide G., D.Sc., Glenmore Lodge, Lambeg.
 1921. Davison, Alex. H., F.R.S.A.I., 1 Salisbury Villas, Salisbury Avenue.
 1928. Davison, Mrs. Alex. H., 1 Salisbury Villas, Salisbury Avenue.
 1925. Deans, Samuel A., L.D.S., 141 Ormeau Road.
 1919. Deans, T. M., B.A., LL.D., Academy House, Rosetta.
 1933. Devlin, Miss Jacqueline, Donard View House, Downpatrick.
 1925. Dickey, Dr. William, 86 Antrim Road.

1921. Dinsmore, J. A. S., Island House, Greenisland.
1922. Dobbin, Miss, 60 University Street.
1921. Doggart, Henry, 29 Sicily Park.
1931. Donnan, John, Glenlea, Central Avenue, Portstewart.
1922. Douglas, John, Helen's Bay.
1922. Downer, W. H. N., Shanklin, Dunmurry.
1933. Duffin, Frank, Rokeby, Deramore Park.
1908. Duncan, W., Friends' Provident Buildings, 58 Howard Street.
1928. Dunlop, Miss May L., 142 University Street.
1931. Dunlop, Miss Minnie, Chichester Gardens.
1932. Dunn, Mrs. H. Lillian, Rainswood, Bloomfield.
1927. Dunne, Herbert E., 3 Saxton Road, Great Crosby, Lancs.
1927. Dunne, Mrs. Edith M., do. do. do.
1921. Dunwoody, W. J., 10 Marine Parade, Holywood.
1928. Eason, H. J., F.R.A.I., 144 Agincourt Avenue.
1923. Elliott, Miss Annie, B.A., Ardroe, Bloomfield.
1908. Elliott, E. J., 4 Bain's Place.
1924. Elliott, Miss Isabel, Belfast Shorthand Institute, Royal Avenue.
1930. Elwood, Thomas, Beechwood, Eastleigh Drive.
1932. Erskine, Miss Nessie, 6 Cedar Avenue.
1927. Ewing, John, M.D., Saxonia, Strandtown.
1924. Fallon, Mrs., 25 St. James' Park.
1930. Ferguson, Miss A. L., 116 Balmoral Avenue.
1928. Ferguson, Miss Elizabeth, 8 Ashdene Drive, Glandore Avenue.
1932. Ferguson, Mrs., M.B.E., Silversprings, Templepatrick.
1897. Finlay, Miss A. M., Kells, Abbott's Langley, Herts.
1906. Finlay, Arch. H., A.C.G.I., A.I.E.E., Willesden, Holywood.
1927. Fisher, Ernest, Inisglas, Greenisland.
1932. Fisher, Mrs. Ernest, do. do.
1929. Fisher, Miss Nora, The Public Museum, Liverpool.
1928. Fleming, W. M'K., 20 Knutsford Drive.
1930. Flynn, Miss K., Clonlee, St. James' Park.
1931. Flynn, Professor Thomson, D.Sc., Queen's University.
1928. Forbes, Thomas, 51 Marlborough Park Central.
1928. Forbes, Mrs. Thomas do.
1923. Foster, Alex. R., M.A., Belfast Royal Academy.
1903. Foster, Mrs. N. H., Hilltown House, Hillsborough.
1924. Frame, Miss H., 15 Skegoniel Avenue.
1924. Frame, Miss M., do. do.
1929. French, Henry, Lisanore, 382 Antrim Road.
1930. Gaffikin, Miss M., 21 Deramore Drive.
1927. Gardiner, Miss E. R., 21 Chlorine Gardens.
1933. Gardner, Miss M. L., 2 Sans Souci Park.
1917. Gibson, Mrs., Bonnington, Lansdowne Road.
1921. Gibson, Samuel, J.P., Summer Hill, Dunmurry.
1931. Gillies, Miss J. Eileen, Galgorm Road, Ballymena.
1926. Glasgow, Henry L., Cookstown, Co. Tyrone.
1930. Glassey, Samuel D., Macosquin, Coleraine.
1921. Glendinning, R. G., Lennoxvale, Malone Road.
1921. Gore, W., F.R.S.A.I., Municipal College of Technology.
1929. Gracey, Walter, Kilrea, Co. Derry.
1933. Graham, Archibald, Botanic Gardens Park.
1922. Graham, Miss M. E., 241 Sundridge Terrace, Mountpottinger.
1924. Graham, Mrs. Sarah, 138 Dunluce Avenue.
1891. Green, Mrs. Isaac, Hawthornden, Knock.
1895. Green, W. A., F.R.S.A.I., Dunmore, Antrim.

1920. Greenham, Miss J. C., 10 Westland Road.
 1917. Greeves, J. R. H., B.Sc., Coolnashee, Crawfordsburn.
 1901. Greeves, J. Théodore, Nendrum, Knockdene Park.
 1918. Greeves, O. V., Colin House, Dunmurry.
 1901. Greeves, W. Leopold, Rockfield, Dundonald.
 1924. Gregg, Rev. W. J., B.A., 8 Wheatfield Gardens.
 1929. Gregg, Mrs. Deborah, do.
 1932. Gribbon, John, Sunnyside, Lough Road, Lurgan.
 1924. Griffith, Henry A. C., Belleville, Cliftonville Road.
 1924. Griffith, Miss Grace A., do. do.
 1924. Griffith, Miss K. H., do. do.
 1923. Grimshaw, Reginald W., Galwally Park.

 1926. Haffern, William, 23 St. Ives Gardens.
 1926. Hale, Thomas, 5 Mervue Street.
 1926. Hall, Miss Jamie M., Moyrusk, Moira.
 1928. Hamill, Miss Nana, 42 Sans Souci Park.
 1930. Hamilton, John, 1 Kinnaird Terrace.
 1930. Hamilton, Mrs. John, do.
 1930. Hamilton, W. H., Hillside, Antrim Road.
 1930. Hamilton, Mrs. W. H., do. do.
 1931. Hammond, Miss M., The Library, Queen's University.
 1932. Handley, George, 30 High Street, Holywood.
 1925. Hanna, Mrs. S. M., 5 Salisbury Villas, Salisbury Avenue.
 1924. Harbinson, Miss Margaret, Doonvarna, Lansdowne Road.
 1930. Harper, J. O., 76 Rushfield Avenue.
 1931. Hartley, J. J., M.Sc., Queen's University.
 1933. Henderson, R. G., F.C.A., 190 Limestone Road.
 1933. Henderson, Mrs. R. G., do.
 1933. Henry, Fred. W., The Carlton, Donegall Place.
 1876. Heron, F. Adens, D.L., F.R.S.A.I., Maryfield, Holywood.
 1922. Heron, Miss E., do. do.
 1933. Hewitt, John H., B.A., 45 Malone Road.
 1932. Hewton, J., 315 Ormeau Road.
 1933. Hill, Miss Hebe, Hillhall, Bloomfield.
 1932. Hill, Miss Maude R., do. do.
 1933. Hill, Dr. Thomas E., 406 Ravenhill Road.
 1905. Hobson, Mrs., Aitennach, Crawfordsburn.
 1895. Hogg, Alex. R., 67 Great Victoria Street.
 1904. Holland, Frank J., Fairyhill, Osborne Gardens.
 1903. Holland, Miss, Highbury, Cadogan Park.
 1928. Holmes, Miss M., Denholme, Diamond Gardens.
 1929. Horscroft, George, Botanic Gardens Park.
 1921. Houston, H. S., Slievmarra, Jordanstown.
 1914. Houston, James D., Northern Bank House, Kilrea, Co. Derry.
 1926. Howard, S. R., 53 Donegall Place.
 1926. Huddlestoe, Miss M. I., 51 Lisburn Road.
 1932. Hughes, Miss Gertrude, 225 Duncairn Gardens.
 1927. Hughes, Joseph, 28 Peel Street.
 1922. Hunter, Dr. J. A., Kirkinner, Balmoral Avenue.
 1929. Hunter, Dr. R. H., 20 Haypark Avenue.
 1929. Hyslop, James L., 27 Bawnmore Road.

 1927. Jackson, James, Winona, Princes Gardens, Larne.
 1930. Jackson, Miss K. N., Martinez Villas, Bloomfield.
 1930. Jackson, Miss E. D., do. do.
 1923. Jackson, M., Colin View, Maze, Hillsborough.
 1909. Jenkins, W. A., Seahornan, Ardglass.

1921. Johnston, E. C., F.R.S.A.I., Lyncote, Helen's Bay.
 1906. Johnston, F. W., The Lodge, Spa, Ballynahinch.
 1923. Johnston, Miss Jean, Fortairn, 711 Antrim Road.
 1916. Johnston, Miss M. B., do. do.
 1933. Johnston, Miss Mary F., Mount Oriel, Bloomfield.
 1922. Johnston, T. J., 134 Somerton Road.
 1930. Johnston, W. J., 45 Pretoria Street.
 1930. Johnston, Miss G., 6 University Street.
 1932. Jones, Mrs. Amy S., Thorndene, 408 Ravenhill Road.
 1932. Jones, Miss Amy E. E., do. do.

 1924. Keenan, Miss Mary, 86 Falls Road.
 1917. Keiller, W., 7 Abercorn Street.
 1922. Keith, S. S., 180 Crumlin Road.
 1932. Kerr, Thomas, M.A., Zoology Department, Queen's University.
 1926. Kevin, Miss Kathleen, B.A., 8 University Street.
 1932. Killen, Mrs. James, M.A., Parkmore, Co. Antrim.
 1923. Kitchen, Gilbert I., 25 Kelvin Parade.
 1930. Knox, Miss F. B., Roxburgh, Ranfurley Avenue, Bangor.

 1932. Laird, James D., 163 Grosvenor Road.
 1931. Larmor, Mrs. Ida, Fairyhill, Dunmurry.
 1923. Lauder, William, Public Library, Donegall Road.
 1928. Law, William, 52 Hopefield Avenue.
 1923. Lawlor, H. C., M.A., M.R.I.A., 14 Windsor Avenue.
 1923. Lawlor, Mrs. H. C., do.
 1932. Lawrie, Mrs. E. D., 12 Park Drive, Bangor.
 1931. Lee, Miss E., 121 Crumlin Road.
 1931. Lepper, George C., B.A., 72 High Street.
 1934. Lepper, Francis Alfred, New College, Oxford.
 1920. Lepper, R. S., M.A., LL.M., F.R.Hist.S., F.R.S.A.I., Elsinore, Crawfordsburn.
 1929. Lewars, David B., 17 Dundela Gardens.
 1926. Liggett, Miss Margaret M., 109 The Mount.
 1922. Logan, James, M.A., F.R.G.S., Greystone, Ravenhill Park.
 1921. Loughridge, James, 52 Elmwood Avenue.
 1931. Loughridge, J. S., B.Sc., M.D., F.R.C.S., 52 Elmwood Avenue.
 1918. Lowry, Miss A., 188 Upper Newtownards Road.
 1908. Lowry, James, Llewellyn Avenue, Lisburn.
 1931. Lyons, Rev. R. N., 16 Malone Park.

 1915. Maconochie, Rev. D. H., B.A., B.D., The Manse, Holywood.
 1915. Maconochie, Mrs. D. H., The Manse, Holywood.
 1905. Macoun, Mrs. S. M., 184 Malone Road.
 1920. Magowan, Arthur, Glynn, Chichester Park.
 1927. Magill, Mrs. Edith, 47 Knock Road.
 1932. Maginness, Miss Kathleen, 42 Cabin Hill Gardens.
 1924. Major, Miss Anna M., Ulai, Holywood.
 1921. Major, Miss Olga, do. do.
 1905. Malcolm, Miss Susan, Downshire Road, Holywood.
 1901. Malcomson, Herbert T., M.B.O.U., 32 Arthur Street.
 1922. Marshall, Rev. Prof. R. L., M.A., LL.D., Magee College, Londonderry.
 1922. Marshall, Miss M. E., 82 Ardenlee Avenue.
 1923. Martin, Mrs. Kathleen R., 17 College Gardens.
 1924. Martyn, Douglas, 30 Orient Gardens.
 1916. Masterson, Miss, 93 Wellesley Avenue.
 1929. Matchett, Miss C., 40 Lansdowne Park.

1915. Mawdsley, Miss, 28 Green Road.
 1925. Maxwell, Miss Isabella, 10 Luxor Gardens.
 1923. Maxwell, Joseph, J.P., Fierna, 77 Osborne Park.
 1923. Maxwell, Miss F. E., do. do.
 1927. Maxwell, W. C., A.R.I.B.A., 3 Wellington Place.
 1920. Megaw, I. J., Dunavon, 21 Knockdene Park South.
 1917. Megaw, Rev. W. R., B.A., M.R.I.A., The Manse, Rosetta.
 1930. Melville, Miss Dorothy, Charis, Ballygomartin Road.
 1930. Melville, Miss Kathleen, do. do.
 1923. Mercer, Professor S. P., Hanging Leaves, Carrickfergus.
 1933. Miller, Miss Letitia F., Brookwatson, Nenagh, Tipperary.
 1921. Milligan, Dr. C. J., Dispensary House, Ligoniel.
 1932. Milligan, F. Orr, Farrenshane House, Antrim.
 1922. Mills, Fredk. A. C., 12 St. Jude's Avenue.
 1922. Moffatt, James A., 2 Chelmsford Place, Larne Harbour.
 1932. Moffatt, Dr. Grace K., D.P.H., do. do.
 1928. Mooney, Miss Helena, 15 Ailesbury Drive.
 1923. Moore, Kenneth M., The Finaghy.
 1931. Mortimer, John S., 200 Ravenhill Road.
 1928. Murdoch, Wm. J., 152 Salisbury Avenue.
 1922. Murray, B., 628 Ravenhill Road.
 1923. Muskett, A. E., M.Sc., A.R.C.Sc.L., 232 Stranmillis Road.

 1927. M'Aleese, John, Longland, Whitehouse.
 1923. M'Aleese, Miss Margaret T., Kilcreen, Holywood.
 1929. M'Alister, W. G., Mount View, Dromore, Co. Down.
 1933. M'Cammon, Miss Hester M., 10 College Green.
 1909. M'Cance, James, 302 Antrim Road.
 1915. M'Carthy, Mrs., Freshford, Knock.
 1922. M'Carthy, Miss A., 46 Stranmillis Road.
 1921. M'Carthy, W. J., Ashley, Alexandra Park, Holywood.
 1931. M'Cleery, John M., Ava House, Old Cavehill Road.
 1917. M'Devitt, H., 115 High Street, Holywood.
 1932. MacDonald, David, Castle Road, Comber.
 1931. MacDonald, Ranald, 94 Antrim Road.
 1924. M'Donnell, Miss Kathleen P., 110 Cullingtree Road.
 1913. M'Dowell, Miss E., The Lodge, Dundela Avenue.
 1921. M'Glavery, R., The Brickworks, Springfield Road.
 1931. M'Gowan, J. H., 8 Shandon Park West, Bangor.
 1926. M'Gregor, Miss Sarah E., 12 Eglantine Avenue.
 1917. M'Iloy, R. J., 32 Pandora Street.
 1914. M'Kay, Miss E. W., B.Sc., 5 Ardbana Terrace, Coleraine.
 1923. M'Kibbin, Fredk. W., F.A.I., 9 Donegall Square South.
 1906. M'Kinney, Miss M. A. C., Sentry Hill, Carnmoney.
 1933. M'Kisack, Alfred M., 9 Mountpleasant.
 1922. M'Kisack, Miss M. K. do.
 1922. M'Knight, Wm. J., 69 Marlborough Park South.
 1932. M'Knight, Miss E., do.
 1917. M'Meekin, A. J.P., Cogry House, Doagh.
 1912. M'Meekin, Miss A. M., Sunnyside, Carnmoney.
 1932. M'Meekin, H. S., jun., do. do.
 1901. MacRae, Kenneth, 829 Lisburn Road.

 1930. Napier, Miss, Bungalow Hostels, Stranmillis.
 1926. Neill, Miss M., Rhanbuoy Park, Carrickfergus.
 1933. Nicholson, Miss Maude Steele, Royal Victoria Hospital.

1930. Noble, Miss Margaret, 24 The Mount.
 1923. Nodder, Charles R., M.A. (Cantab.), The Corner House, Lambeg.
 1923. Nodder, Mrs. Winifred, The Corner House, Lambeg.
 1898. Orr, James, M.B.O.U., 64 Great Victoria Street.
 1923. Orr, R. J., Crawfordsburn.
 1926. O'Kane, John, 127 Mulholland Terrace, Falls Road.
 1929. Patrick, J., 76 Shandon Park.
 1933. Peacock, Mrs. Emma H., Madison House, Cavehill Road.
 1931. Pears, John B., Woodlands, Holywood.
 1931. Peden, W. J., 27 Ashgrove Park.
 1931. Plenderleith, Miss C., 9 Fortfield Terrace, Greenisland.
 1930. Pollock, Mrs. E., 67 King's Road.
 1926. Pollock, Rt. Hon. H. M., D.L., M.P., 18 Windsor Avenue.
 1932. Pollock, Miss Mary M., Lisbreen, Larne Harbour.
 1903. Pooler, Rev. Charles K., D.D., D.Litt., Carnbin, Whitehouse.
 1933. Povey, Kenneth, M.A., Queen's University.
 1930. Prenter, J. D., Le Nid, Ormiston Crescent.
 1922. Pringle, Alex., 1 Clarence Street West.
 1924. Purce, James, 33 Ravenhill Park.
 1929. Purdy, Charles E., Oakleigh, Newtownbreda.
 1921. Pyper, James B.A., 30 Cranmore Avenue.

 1916. Rea, Miss L. C., Salem House, Sydenham.
 1907. Rea, Miss M. W., M.Sc., do. do.
 1931. Reavey, R. H. W., 31 Meadowbank Street.
 1933. Reid, Miss Gretta, 24 Cranmore Avenue.
 1919. Reilly, George Carr, A.M.I.Min.E., M.I.Mech.E., 229 Cregagh Road.
 1933. Reilly, Mrs. George Carr, 229 Cregagh Road.
 1923. Reilly, George E., C.E., 18 Salisbury Gardens.
 1931. Reilly, Grier, 229 Cregagh Road.
 1925. Rhynehart, John G., B.Sc., F.R.C.Sc., Ministry of Agriculture, Stormont.
 1932. Rice, Mrs. Margaret, 141 Ormeau Road.
 1926. Richardson, J. S. W., Woodhouse, Bessbrook.
 1933. Robb, Frank A., J.P., Ardnagrena, Whitehead.
 1932. Robb, S. A., 128 Cliftonpark Avenue.
 1921. Robinson, W. R., 58 Ravenhill Park.
 1921. Robinson, Miss L., 16 Kingsmere Avenue.
 1928. Robinson, Wm. H., 687 Upper Newtownards Road.
 1930. Rollins, Miss F., 25 Park Avenue, Bangor.
 1922. Ruddell, Miss B., Lake View, British, Crumlin.
 1909. Russell, Nelson, Strathmore, Lisburn.
 1927. Rutherford, E. D., M.B., Ch.B., Woodlawn, Cherryvalley, Knock.
 1930. Rutherford, Miss Florence, 198 Limestone Road.

 1913. Savage, W. E. J., 8 Lincoln Avenue.
 1917. Sayers, Miss W. J., B.A., Bartragh, Cherryvalley Park.
 1920. Sayers, Miss J. B., do. do.
 1924. Sayers, Miss M., 61 Clonlee Drive.
 1932. Scott, Miss J. E., Grasmere, Knockvale Park.
 1929. Searle, G. O., B.Sc., Research Institute, Lambeg.
 1932. Sefton, A. Burton, St. Aubyns, Deramore Drive.
 1926. Sefton, Thomas W., do. do.
 1932. Seymour, W. R. D., M.A., Inchmarlo, Marlborough Park.

1931. Shanks, E., 3 Galwally Park.
 1932. Sharpe, A. N., Hollybank, Ravenhill Road.
 1930. Shaw, Miss A. E., 58 Westland Road.
 1926. Shaw, Miss M. E., do.
 1926. Shaw, Miss Esmé, 12 Wolseley Street.
 1925. Shearer, Thomas, 3 St. Jude's Avenue.
 1921. Shiels, Edward, Summer Hill, Bangor.
 1905. Shiels, Rev. Father J. F., P.P., Ballygowan, Co. Down.
 1921. Shortt, James, Willmount, Lisburn.
 1933. Siggins, G. C. H., Ministry of Education, Stormont.
 1921. Sinclair, Robert, 48 Waring Street.
 1920. Small, Professor J., D.Sc., M.R.I.A., Queen's University.
 1924. Smyth, John, M.A., LL.B., Donard, Cregagh.
 1930. Smyth, Miss H., 4 Knockdene Park Central.
 1933. Spear, Miss Frances J., Presbyterian Hostel.
 1927. Standfield, Miss Henrietta, 31 Virginia Street.
 1910. Stelfox, Mrs. A. W., B.Sc., A.R.C.Sc.I., 14 Clareville Road,
 Rathgar, Dublin.
 1911. Stendall, J. A. Sidney, M.R.I.A., M.B.O.U., 42 North Parade.
 1923. Stendall, Mrs. J. A. S., do.
 1904. Stephens, Captain J. Kyle, J.P., 13 Donegall Square North.
 1923. Stewart, Albert K., 14 Mount Eden Park.
 1930. Stewart, J. E., M.B., L.R.C.P., Portglenone.

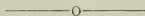
 1933. Stewart, Jack H., c/o Devonshire Hotel, Newtownards.
 1932. Stewart, Miss Marion, Pinetree House, Hillsborough.
 1894. Stewart, W. J., M.P., 105 Baker Street, London, W.1.
 1929. Storey, Fredk., Maormar, Cultra.
 1924. Swan, H. P., Ardeelan, Buncrana, Co. Donegal.
 1922. Sweeney, William, 105 Cliftonville Road.

 1922. Taylor, Frank, St. John's, Marino.
 1930. Thompson, Alex., 406 Lisburn Road.
 1928. Thompson, Ernest W., Tullymore School, Broughshane.
 1926. Thompson, John D., 110-111 Scottish Provident Buildings.
 1932. Thompson, Samuel D., Tir-na-Nog, Helen's Bay.
 1933. Tomb, David, 53 Marlborough Park North.
 1932. Tomb, John J., Bellaghy P.E.S., Killagan.
 1931. Topping, William, 53 Haddington Gardens.
 1930. Tripp, Miss A. G., 20 College Green.
 1933. Turner, Alex., Stranmillis Training College.
 1925. Turner, Edmund, A.R.C.Sc.I., 3 Sandhill Gardens.
 1921. Turner, Samuel, Jun., Ballyskeagh, Barnett's Road.
 1932. Turtle, L. I., 88 Belmont Road.
 1904. Turtle, W. Haydock, Lumeah, Malone Park.

 1931. Unwin, F. R., 43 Adelaide Park.

 1928. Wall, John J., J.P., Antrim Estate Office, Glenarm.
 1919. Warnock, Miss A. M'C., M.A., 13 Cromwell Road.
 1933. Waterhouse, Professor Gilbert, Litt.D., F.R.G.S., 92 Malone
 Road.
 1933. Waterhouse, Mrs. Gilbert, M.A., 92 Malone Road.

1913. Watson, Mrs. F. W., B.Sc., 10 Cranmore Gardens.
 1932. Weatherup, W. J., B.Sc., 98 Malone Avenue.
 1925. Webb, Miss E. M., Rath House, Shandon Park.
 1924. Wegg, George R., Glynn Villas, Larne.
 1927. Weir, Miss M. K., Bangor Collegiate School, Bangor.
 1924. Weyms, David, The Moorings, Dunmurry.
 1933. Whelan, C. Blake, M.A., Barrister-at-Law, Glenside Low, Castlereagh.
 1933. Wherry, Miss Irene, Chelsea, Balmoral.
 1927. White, Miss Jeanne M., M.Sc., 18 Carleton Street, Portadown.
 1933. White, Miss Marion, 41 Rosetta Park.
 1927. Whyte, Mrs. Elizabeth F., 10 Orient Gardens.
 1928. Whyte, Miss Eileen A., do.
 1929. Wightman, James A., 52 Hanover Street, Portadown.
 1927. Wilkinson, Miss D. H., 25 Ashley Avenue.
 1930. Williams, G., M.Sc., Queen's University.
 1917. Williamson, James, J.P., Sandown Park, Knock.
 1923. Willis, Miss A., 3 Avonmore, Balmoral.
 1925. Wilson, Miss A., 28 College Park Avenue.
 1901. Wilson, Professor Gregg, M.A., M.R.I.A., D.Sc., O.B.E., Transy, Beechlands, Malone Road.
 1904. Wilson, Mrs. Gregg, Transy, Beechlands, Malone Road.
 1931. Witherow, Cunningham, 95 Great Victoria Street.
 1923. Woodburn, Rev. J. B., M.A., D.D., 9 Harberton Avenue.
 1901. Workman, W. H., F.Z.S., M.B.O.U., Lismore, Windsor Avenue.
1933. Young, Miss Emily M., High Street, Carrickfergus.



JUNIOR MEMBERS.

1931. Bairnsfather, Evelyn, 8 Eileens Gardens, Windsor Park, Belfast.
 1931. Begley, George, 113 Antrim Road, Belfast.
 1928. Bell, James, High Street, Carrickfergus.
 1928. Black, Thomas, 27 Agnes Street, Belfast.
 1934. Black, Andrew, 12 Seabourne Parade, Belfast.
 1930. Bolton, Felicity, 40 Ulsterville Avenue, Belfast.
 1933. Bonifacio, John, 98 Deramore Avenue, Belfast.
 1933. Boyd, John, Ballyhenry, Carnmoney.
1930. Clarke, Michael, 42 Railway Street, Lisburn.
 1931. Clarke, Eleanor, 42 Railway Street, Lisburn.
 1926. Cleeland, Marjorie, 13 Eglantine Gardens, Belfast.
 1927. Cleeland, Martyn, 13 Eglantine Gardens, Belfast.
 1933. Cody, Sheila, Cogry, Doagh, Co. Antrim.
 1928. Cole, Jean, 109 University Gardens, Belfast.
 1929. Conelly, A. E., 49 Delhi Street, Belfast.
 1930. Cormack, Margaret, 37 Castlereagh Place, Belfast.
 1932. Cormican, Terence, 11 Eblana Street, Belfast.
 1923. Crawford, Agatha R., Easthope, Bawnmore Road, Belfast.
1933. D'Arcy, Margaret, 61 Haypark Avenue, Belfast.
 1927. Deane, Campbell Douglas, "Threave," Newtownbreda, Belfast.
 1926. Deans, Joan, 141 Ormeau Road, Belfast.
 1927. Deans, Phyllis, 141 Ormeau Road, Belfast.

1931. Downer, Margaret, Chrome Hill, Lambeg Lisburn.
 1933. Duffin, George, "Rokeby," 3 Deramore Park, Belfast.
1928. Faris, Kathleen, "Rosebank," Marlborough Park, Belfast.
 1932. Ferguson, Kathleen, 104 Seacliff Road, Bangor, Co. Down.
 1932. Finlay, J. Frazer, 62 Castlereagh Street, Belfast.
 1932. Forbes, Helen, 70 Salisbury Avenue, Belfast.
 1930. Forsythe, Betty, 8 Mountpleasant, Stranmillis, Belfast.
1934. Garrett, Ethel, "Hillview," Barnett's Road, Knock.
 1929. Glendinning, Francesca, 1 Lennoxvale, Malone Road, Belfast.
 1928. Glendinning, Priscilla, 1 Lennoxvale, Malone Road, Belfast.
 1925. Glendinning, Barbara, 26 Sans Souci Park, Belfast.
 1924. Glendinning, Joan, 26 Sans Souci Park, Belfast.
 1931. Glendinning, Mary, 26 Sans Souci Park, Belfast.
 Gordon, John, Billy and Agnes, 130 Eglantine Avenue, Belfast.
 1930. Gotto, Robert V., 20 Adelaide Park, Belfast.
 1931. Gribbon, Derwent, 27 Glandore Gardens, Belfast.
1933. Hanna, Joan, "Mayfield," Dunmurry.
 1930. Hanna, Margaret, Farm Hill, Dunmurry.
 1933. Hassan, Suzanne, 64 Rugby Road, Belfast.
 1931. Henderson, Stanley, 4 Kirkliston Drive, Belfast.
 1931. Henderson, Shaemus, 4 Kirkliston Drive, Belfast.
 1933. Hislop, Nan, 35 Ulsterville Avenue, Belfast.
 1931. Hogg, Elsie, 17 Eglantine Avenue, Belfast.
 1931. Holohan, Annie, 10 Skegoniel Drive, Belfast.
1932. Irwin, Margaret, 29 University Square, Belfast.
1932. Johnston, John, 105 Ardenlee Avenue, Belfast.
 1933. Johnston, Louis, 105 Ardenlee Avenue, Belfast.
 1933. Johnstone, Helen, 134 Somerton Road, Belfast.
1931. Kearney, Paul, 97 Limestone Road, Belfast.
 1931. Kearney, Ethna, 97 Limestone Road, Belfast.
 1930. Kearney, Gerald, 97 Limestone Road, Belfast.
 1930. Kernaghan, Sam, 46 Salisbury Avenue, Belfast.
1928. Lepper, Frank, "The Warren," Upper Colwyn Bay, N. Wales.
 1930. Lord, Sheila, 18 Woodvale Gardens, Belfast.
 1930. Lord, Eileen, 18 Woodvale Gardens, Belfast.
1925. MacDonald, Angus, 94 Antrim Road, Belfast.
 1930. Martin, Hazel, "Rosebank," Whiteabbey.
 1927. May, Ernest Langton, "The Sheiling," Sutton, Co. Dublin.
 1930. Maultsaid, Norah, Glengormley, Whitewell, Belfast.
 1933. M'Clintock, Eva, "Oakmount," Drumbeg, Belfast.
 1931. M'Cloy, Elinor W., 17 Wellington Park, Belfast.
 1931. M'Glue, Kathleen, 106 Mountcollyer Street, Belfast.
 1931. M'Collum, Kathleen, 4 Mileriver Street, Belfast.
 1934. M'Cready, Robert, 16 Camberwell Terrace, Antrim Rd., Belfast.
 1933. M'Cullagh, Murray, 28 Wyndham Street, Belfast.
 1933. Mitchell, Francis, Eglantine Rectory, Hillsborough.
 1934. Montgomery, W. E. (Mr.), Methodist Manse, Moira, Co. Down.
 1933. Moore, Tillie, 26 Calvin Street, Belfast.
 1927. Murray, H. Nicol, 3 St. Jude's Avenue, Belfast.

1930. Nelson, Dorothy, 290 Donegall Road, Belfast.
 1930. Nelson, Edna, 290 Donegall Road, Belfast.
 1929. Nodder, Charles D., Ormiston, Campbell College, Belfast.
1931. Olley, Robert, "Ollerton," The Green, Dunmurry.
 1931. Olley, Harry, "Ollerton," The Green, Dunmurry.
 1926. Orr, Brian, 33 Ardenlee Avenue, Belfast.
 1932. Orr, Nan, 136 Mountcollyer Street, Belfast.
1932. Purce, Norman, 23 College Gardens, Belfast.
1930. Quan, John, 19 Landscape Terrace, Belfast.
1930. Rhind-Martin, A. M., 47 Adelaide Park, Belfast.
1932. Savage, Rita, 20 Vicinage Park, Belfast.
 Searle, Tony, Flitcham Abbey, Norfolk.
 1928. Searle, Beatrice, Flitcham Abbey, Norfolk.
 1929. Searle, David, Sedburgh College, Yorks.
 1930. Shaw, Anne, Bank House, 1 Earl Street, Belfast.
 1930. Shaw, Mary, Bank House, 1 Earl Street, Belfast.
 1930. Shaw, Patrick, Bank House, 1 Earl Street, Belfast.
 1931. Sloane, Joan, 59 Ponsonby Avenue, Belfast.
 1930. Smith, Marjorie, Riddell Hall, Belfast.
 1926. Smith, William, 2 Grasmere Gardens, Cavehill Road, Belfast.
 1932. Spiller, Brian, 34 Mountcharles, Belfast.
 1930. Stendall, Leslie, 176 Ormeau Road, Belfast.
 1929. Steven, Alistair, 60 Ulsterville Avenue, Belfast.
 1925. Steven, Isabel, 60 Ulsterville Avenue, Belfast.
 1929. Steven, Robert, 60 Ulsterville Avenue, Belfast.
 1932. Stewart, John and Sarah, "Inglemede," Ardenlee Ave., Belfast.
 1933. Stewart, James, 21 Sydenham Gardens, Belfast.
 1932. Stewart, Winnie, 267 Ligoniel Road, Belfast.
 1929. Stoneley, Michael, 58 Ulsterville Avenue, Belfast.
 1930. Sweeney, Peggy, 183 Cliftonville Road, Belfast.
 1931. Swinson, Percy, 83 Upper Newtownards Road, Belfast.
1931. Taylor, Pauline, 72 Roseleigh Street, Belfast.
 1929. Teuton, Thomas, 19 Ravenhill Park Gardens, Belfast.
 Thompson Gerald, 12 Ravenhill Parade, Belfast.
 1930. Tweedie, Peggy, 9 Stranmillis Gardens, Belfast.
1931. Walby, Gerald, 56 Dublin Road, Belfast.
 1931. Walby, Leonard, 56 Dublin Road, Belfast.
 1931. Ward, Ruby, "Oakmount," Drumbeg, Dunmurry.
 1931. Ward, Sybil, "Oakmount," Drumbeg, Dunmurry.
 1930. Webb, Shirley, 1 Kensington Road, Knock, Belfast.
 1930. Webb, Joan, 1 Kensington Road, Knock, Belfast.
 1934. Wilson, Eleanor, 11 Stranmillis Gardens, Belfast.
 1930. Wright, Eileen, "Inveresk," Connsbrook Avenue, Belfast.



PRESENTED
20 JUN 1935

PRESENTED
9 DEC 1938
PROCEEDINGS
... AND ...



ANNUAL REPORTS

SERIES II
VOL. IX.



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1835-36.

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PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1935
(SEVENTY-SECOND YEAR)

SERIES II.
VOLUME IX.



PART VII.
1934-35.

EDITOR:
W. M. CRAWFORD, F.R.E.S., F.Z.S.



BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-SECOND YEAR, 1934-35.

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F.G.S.

R. J. WELCH, M.SC., M.R.I.A.

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PROCEEDINGS.

SUMMER SESSION.

GIANT'S SCENCE AND ALTIKEERAGH.

Date—Saturday, 12th May, 1934. Conductors—S. D. Glassey and J. Skillen. Number present, 100.

The inaugural excursion was a united one, the Londonderry and Route Clubs joining forces with the Belfast Club at Coleraine, to visit the Giant's Scence and Altikeeragh.

Over one hundred members and friends were present at the excursion.

The party proceeded to Knockmult and the Giant's Scence, two linked elevations.

The Scence has been identified as the dun of "Cheteren of the Brilliant Deeds," a famous Red Branch Knight. Knockmult is extremely interesting owing to the fact that the prehistoric cultivation is plainly to be seen, for the terraces are almost perfect. On the top of the Scence S. D. Glassey gave an interesting talk on the archaeology of the place, and pointed out that here existed an early fortified Pictish town, constructed also as a sanctuary.

The next stopping place was Altikeeragh, where Mr. Alex. Atiken, a local resident interested in archaeology, exhibited at his house some flints and pottery.

NORTH LOUTH (UNITED EXCURSION).

Date—25th to 27th May, 1934. Conductors—Col. R. G. Berry and J. Skillen. Number present, 70.

The party arrived at Rostrevor on Friday evening. Next morning a start was made for the "Border," and, soon after that, Moyry Castle was reached, and there the party was met by some members of the Louth Archaeological Society, with whom they inspected the old Border castle.

From here a pleasant walk brought the party to Faughart, where stands an ancient ruined church, and which is also the birthplace of St. Brigid. Thence on to Dundalk to visit, on the way, Dundalgan, the reputed birthplace of Cuchulain and one of the most historic sites of the North. Leaving Dundalk the following places were visited in turn: Louth, Ardee and Ballymascanlon (to view the Proleek Dolmen, probably the largest of its class in Ireland). After this, buses were mounted again for the long climb over the Carlingford Mountains, back to Newry and Rostrevor.

After dinner a meeting was held when Miss Sayers and Dr. Praeger gave talks on the more interesting botanical finds of the day.

On Sunday, the morning was free while, in the afternoon, there was an excursion by bus to Greenore district, to see the raised beach. At night the party departed for their respective homes.

SCRABO.

Date—Saturday, 2nd June, 1934. Conductors—J. J. Hartley and Rev. W. R. Megaw.

The party went by rail or private car. The Triassic sandstones of Scrabo, their ripplemarks, sun-cracks, rain-pitting, etc., were examined and the conditions under which they were deposited were discussed. The dolerite cap, to which the preservation of Scrabo is due, was also seen.

Tea was partaken of at the Monument, before the return to Belfast.

MONLOUGH.

Date—Tuesday (evening), 12th June, 1934. Conductors—D. J. Carpenter and George C. Reilly.

There was a good attendance and when the vehicles arrived near the lake D. J. Carpenter gave a talk on birds likely to be seen.

There was a marked absence of fresh water mollusca along the shores of the lake, but other pond fauna were well represented and included *Dytiscus marginalis*, *Acilius sulcatus*, *Gyrinus natator*.

Marsh plants were present in variety and among those secured were *Veronica scutellata*, *Potentilla palustris*, *Menyanthes trifoliata*, *Elaeocharis palustre*, etc.

BALLINTOY.

Date—Saturday, 16th June, 1934. Conductors—Dr. J. W. Jackson and G. C. Reilly. Number present, 50.

The chief object of the excursion was to visit the excavation work going on at the caves at Ballintoy under the superintendence of Dr. Wilfrid Jackson, F.G.S., of Manchester Museum, and his volunteer lady helpers.

Last year's operations were described at pp. 252-255 *ante*.

The members were privileged to see the work in progress and at a considerably advanced stage. An ancient potter's hearth had been disclosed about five feet below the surface, and a still deeper cutting extending to sixteen feet in depth revealed evidence of the existence of four distinct occupational periods, each containing bones, teeth, shells, flints, and pottery peculiar to its own period. A choice collection of these objects was placed on exhibition, in addition to a plaster cast of the small "Mother Goddess," which was figured in last year's Proceedings at page 254.

A rather interesting and very timely point was made regarding this by the production of a London journal wherein are published several photographs of recent "Megiddo" discoveries, one of which tallies in almost all respects with that unearthed at Ballintoy by Dr. Jackson.

The ancient kitchen sites at Whitepark Bay were also examined under the leadership of Dr. Jackson, who demonstrated the methods adopted in working over such sites.

Following tea at Carrick-a-Rede Hotel, a short business meeting was held, C. R. Nodder (President) in the chair, and four Junior members were elected. On the homeward journey, *via* the Antrim Coast Road, many objects of interest were pointed out.*

*For a fuller report *vide* p. 312 *post*.

BOTANIC GARDENS.

Date—Tuesday (evening), 19th June, 1934. Conductors—Geo. Horscroft and A. Graham.

Over 40 members took advantage of this tour through the Gardens under the leadership of the Superintendent and Assistant Superintendent, notwithstanding somewhat inclement weather. The party was conducted first through the propagating houses, then on to the large conservatory

with its wealth of bloom. Following, a visit was made to the recently-constructed rock garden, lavish in alpines, each in its allotted space and carefully labelled. Here the conductors imparted much interesting and valuable information. The even more recent heath garden was inspected, together with rose garden and herbaceous borders.

ELLIS'S CUT.

Date—Saturday, 30th June, 1934. Conductors—Rev. W. R. Megaw and J. Skillen. Number present, 50.

Cranagh Bridge, on the Lagan—Lough Neagh Canal, was the place where the walk to Ellis's Cut was to begin, and the bridge was reached after what was a not unpleasant delay caused by a wrong turn on the narrow road; here the party proceeded on foot about a mile or so down the tow path of the canal. All along this stretch was a paradise for the botanists. The banks of the canal for the distance traversed were fringed with high sedges, iris, and many other water-loving plants, and many of the party took the opportunity of collecting samples of some of the rarer species for their herbariums. Zoologists were also kept busy collecting animal life, which was numerous and varied. At the end of the canal is Ellis's Cut, the last lock before Lough Neagh. Near here, within the space of a mile and a half, three counties meet, Antrim, Down, and Armagh. There is a delightful little bay at this place called Shan Port, and round its margin the party wandered, some collecting, some resting, but all enjoying the sylvan beauty of the lough shore. After a short stay the conductor's whistle summoned the members together for Lurgan, where an excellent tea was enjoyed at the Brownlow Arms Hotel.

GALWAY.

Date—12th to 16th July, 1934. Conductor—Dr. R. Ll. Praeger. Number present, over 100.

Belfast members of the Naturalist Field Club, numbering about 70, left on the 12th July, travelling by train to Dublin and thence by bus to Galway. On arrival at Dublin members of the Dublin Field Club, with Dr. Praeger, the conductor throughout the excursion, joined up.

Galway was reached after an interesting run of about two hours, and here some members of the Limerick Club were in waiting, as well as some members of Belfast and

Dublin Clubs, who had arrived in private cars, bringing the numbers to over 100. As the evening was late and some time was occupied in settling down for the stay it was "and so to bed," like the immortal Pepys.

Next morning, Friday, 13th, the party was early astir for the journey to Connemara, leaving the Royal Hotel by special buses for Recess *via* Oughterard. The morning was gloriously fine and the visibility good, the whole appearance of the country being delightful with lakes and moorlands and the Twelve Pins towering upwards in the distance. At Recess, headquarters was fixed for the day on the shores of Glendalough Lake, and most of the members proceeded to climb Lisoughter (the Western Fort), 1,314 feet high, to the Connemara marble quarries and on to the summit. Others were content to wander up the valley botanizing, etc. It was surprising to find an almost complete absence of bird life; even the swallow tribe and the common gull were conspicuous by their absence. After a sandwich lunch lake bathing was enjoyed by some, and others further explored the lake shore. Later buses were boarded for Galway. After dinner a meeting was held (C. R. Nodder, Belfast President, in the chair), when a paper was read by J. Skillen, Hon. Secretary, on the history of Galway. Dr. Praeger summed up the botanical result of the day's work and gave a brief programme of the following day's proceedings.

On Saturday morning, the buses left at 9.30 to drive around the head of Galway Bay, where a brief halt was made at Kinvarra to visit the castle. This fortress is a fine example of a Norman keep with enclosed bawn, and is preserved by Senator Gogarty, the owner, who had kindly given permission for the visit. The road was then taken for The Burren, which requires to be seen to be believed, the mountains rising direct from the sea for some 1,100 feet, and up to their summits the carboniferous limestone extends, bare of all covering and standing grey and naked to the sky, a frozen mountain of stone, like an illustration of Dante's inferno.

After lunch a move was made for Fanore Bridge, where there are extensive sand dunes running down to the open Atlantic, with the Aran Islands just opposite, and here some time was spent in hunting for plants, insects, etc. On the way back to Galway a halt was made to visit Corcomroe Abbey.

After dinner, J. P. Bruncker (President, Dublin Club) and others gave a talk on the plants collected during the day, and J. J. Hartley (Belfast Club) on the geology of the district.

The next day being Sunday, 15th July, the forenoon was free from any official programme, but a small group of members were taken round the city by the Honorary Secretary of the Belfast Club.

On the way back to the hotel a stop was made at the University, where the Dean of Residence (Rev. Dr. Hynes) very kindly accompanied the party through the building, and the ethnographical museums.

After lunch an excursion was held up the north-east side of Lough Corrib, and in addition to the field work done three abbeys were visited, the first being Claregawley, a Franciscan monastery founded in the 13th century by the Friars Minor; and then Ross Abbey, also a Franciscan House—this building is in fine preservation, the cloister with its arcade being about perfect—and, lastly, the celebrated abbey of Cong, erected for the Order of Augustinians by Rory O'Connor, King of Ireland, in the 12th century. The Cross of Cong of this abbey is perhaps the finest existing specimen of Irish art, and is now in the National Museum.

Arriving back at Galway the usual business meeting was held and bags packed for departure in the morning. Monday morning saw the party leave Galway with regret and with warm feelings toward a kindly and hospitable people. The way to Dublin was through Mullingar, where lunch was served, and Dublin was reached in time for the 6.40 train home.

GIANT'S CAUSEWAY.

Date—Saturday, 21st July, 1934. Conductor—A. M'I. Cleland.
Number present, 20.

The party went by train and bus as far as Tonduff, thence on foot to Hamilton's Seat, on the eastern slope of Pleaskin Head, where the members rested and refreshed themselves, while the conductor gave a brief talk on the chief geological features in view and about to be visited.

Thereafter the party followed the path along the edges of the various heads of the cliffs, getting magnificent vistas

of their many bays and inlets, seen best from above, and in due course reached their bus again at the Causeway. Tea was served on the train. The weather during the whole afternoon was glorious.

BELLEVUE ZOOLOGICAL GARDENS.

Date—Tuesday (evening), 24th July, 1934. Conductors—R. H. Hunter and J. S. Loughridge.

A very pleasant evening was spent going round the various cages and enclosures and listening to instructive talks by the conductors.

BALLYMACORMICK POINT.

Date—Saturday, 28th July, 1934. Conductors—Professor Gregg Wilson and J. Skillen.

The object of this excursion was to study the animal life in the rock pools along the coast. During the winter Professor Gregg Wilson had given in the Queen's University a series of lectures to the members of the Club on zoology, and this excursion was to examine some of the animals he had dealt with in his lecture in their habitats.

The seashore, Dr. Gregg Wilson pointed out, contained abundance of food which attracted an astonishing variety of marine species, ranging from the minute saline mosquito to the soft-bodied jelly fish, a foot or more in diameter, and shell fish which had evolved a calcareous house to protect their soft parts. Some of these shell fish have the vegetarian, others the carnivorous habit.

After some pleasant hours spent on these researches a return was made to Bangor, where a refreshing tea was enjoyed. Dr. Gregg Wilson having been warmly thanked, the special bus left for home, which was reached at an early hour.

THE FLUSH.

Date—Tuesday (evening) 7th August, 1934. Conductor—James Orr.

The excursion consisted in a walk from Ligoniel tram terminus to Glengormley, and thence home by tram.

PORTAFERRY.

Date—Saturday, 18th August, 1934. Conductor—J. Skillen.

On arrival of the party at Ardkeen, after passing through Newtownards and Kirkcubbin, Mr. H. J. Lennon, a native of the Ards, was in waiting and acted as a very informative and efficient conductor for the day. A walk from the main road up Ardkeen hill followed. Alongside stands the ancient church, now a ruin, the burial place being still used, as recently-erected headstones testify. Leaving this place a short stop was made at Lough Doo to give the botanists an opportunity to examine the flora.

The next place to be visited was the castle and church of Castleboy or what remains of them.

Proceeding onwards the ancient church of Slanes was reached. Slanes was the term used in St. Patrick's day for a holy well, an adjunct nearly always found at a Patrician foundation. The well here has now disappeared. A souterrain is close by the ruined church. It is described by Harris in his *Survey of Down*. There now only remains the circular terminal chamber which is easy of access.

On the way to Tara fort, a field in Knockumalder (the hill of the eagle), where stone-lined graves were found, was pointed out and a stop was made to examine a standing stone at Millen Bay and a stone circle consisting of eleven stones forming a ring 60 feet in diameter. It is hoped that some time in the future this circle will be excavated as it seems to be a virgin spot.

The next place visited was Tara, a fine ringed fort standing on a hill 150 feet high. From here a magnificent view was obtained of the Lower Ards and Strangford Lough.

Then Templecowey was visited to inspect the ruins of the Church of St. Quinton situated on the sea shore.

Arriving at Portaferry an excellent tea was enjoyed, and afterwards the castle of the Savages and Templecranny old church were seen and what is known about them related by Mr. Lennon.

On the way home a stop was made at the Abbey.

Before leaving a meeting was held (J. A. S. Stendall in the chair), when a warm vote of thanks was passed to Mr. Lennon for his kindness in conducting the party. This ceremony and the journey home terminated the excursion.

BARONSCOURT.

Date—Saturday, 1st September, 1934. Conductors—A. A. Campbell and J. S. Loughridge. Number present, 40.

The party travelled by train to Newtownstewart, where they were met by Mr. W. Ross Henderson, J.P., a member of Derry Field Club.

On the way from the station the old bridge, built in 1727, was noticed, as was the adjacent site of an O'Neill castle at "Pigeon Hill." Proceeding to the Corn Market, to which access was accorded by Mr. Galbraith, the Stewart Castle was inspected.

Mr. Henderson then led the way to the Parish Church to see the memorial (1634) of Lady Montgomery, of the Ards, mother of the historian of the Montgomery family.

Harry Avery's Castle, an O'Neill fortress on an eminence overlooking the town and the valley of the Mourne, next claimed attention.

Walking into the town again, down a quiet old country lane, a fleet of cars in waiting including private cars provided by many good friends, were soon filled and Baronscourt was reached in a few minutes.

Entering the demesne, the first stop was at "The Bower," a picturesque little kiosk on the shores of one of the three lakes in the demesne, so that the vista through the old trees might be admired. The avenue to the Castle is well wooded, and the masses of ferns, etc., on the way delighted the botanists. *Mercurialis perennis* (Dog's Mercury) was found in the grounds.

Lunch was partaken of on "The Milky Hill," after which Mr. Henderson conducted the party through the gardens and round through the woods to the ruins of the old Plantation castle at Derriewoone. Gathering later in front of the estate manager's house a start was made for Newtownstewart, visiting on the way a most interesting Bronze Age burial place at Ballyrennan.

After tea a short business meeting was held, Miss Sayers, B.A., presiding, when thanks were expressed to the Duke of Abercorn for permission to visit the demesne; to Mr. Henderson for his indispensable services in connection with the excursion; to the various friends who had provided cars; and to Messrs. F. L. Hood and R. Galbraith for courtesies extended. A Junior Section member was elected. The return journey to Belfast was made by train.

BENBURB.

Date—Saturday, 15th September, 1934. Conductor—J. Skillen.

It was a lovely autumn morning and it felt good to be alive with a beautiful drive in prospect through parts of Armagh and Tyrone. At Portadown the road to Loughgall and Charlemont was taken. All along this road there seemed to be a continual orchard, the heavily-laden branches covered with apples. A bountiful harvest was in evidence on every side, the fields literally crowded with golden stooks of corn, and the autumnal tints in the trees were a warning of the departing summer.

At Charlemont, the site of the historic fort which formerly stood there, and which was burned down in the recent troubles, was visited.

A walk across the bridge brought the party to Moy, a pretty little village built in quadrangular shape by a former Lord Charlemont on the model of a Continental town. Leaving that place, Benburb was soon reached, a pretty hamlet with its village pump surmounted by a sundial. Here was seen the castle of Shane O'Neill. The situation is a beautiful one, the ruins standing on the top of a limestone cliff 120 feet high, with the turbulent Black-water River flowing at its base.

From Benburb the road was taken to Battleford Bridge, the scene of the battle of Benburb in 1646 between General Monroe and Owen Roe O'Neill in the war between Charles I. and the Parliament, which had spread to Ireland.

Leaving Battleford Bridge, the next stop was at the site of the battle of the Yellow Ford in 1598 between Hugh O'Neill and Marshal Bagnal.

Leaving here time permitted a visit to the Palace of Emania, now known as the Navan Fort.

At Armagh the two cathedrals were visited. At the old cathedral the Dean of Armagh very kindly conducted the party around, and also during a hasty visit to the celebrated library.

After tea a stop was made on the way home to visit the Observatory, where the party was courteously received by the Rev. W. F. A. Ellison, the astronomer in charge. After signing the visitors' book and returning warm thanks to Mr. Ellison for his kindness, the party left for home, after a very instructive and enjoyable excursion.

SAINTFIELD DEMESNE.

Date—Saturday, 6th October, 1934. Conductors—H. Cairns and N. Carrothers.

This demesne was visited for purposes of a fungus foray by kind permission of Rev. Blackwood-Price.

The weather militated against the attendance, but those who did defy the rain spent a fruitful time in the demesne. and later the sky brightened and the rain ceased.

The Junior Division, in care of Mrs. Nodder, Honorary Secretary, was well represented, and full baskets of the various fungi found in the woods were brought home to be shown at the Club's coming Conversazione.

ANNUAL CONFERENCE AT COOKSTOWN.

The Third Annual Conference of Field Clubs in Northern Ireland was held from 28th to 30th September, 1934, at Cookstown. There were present members from Belfast, Route, Limavady, Omagh, Londonderry, and Tyrone Clubs.

The first meeting of the conference was held on the evening of their arrival and was presided over by the Belfast President (C. R. Nodder), as he did at subsequent meetings. After the chairman had welcomed the members he invited Thomas Greer (the Tyrone Club Secretary) to open the discussion set down on the agenda on "Nature Reserves."

Mr. Greer appealed for reserves to be set aside, such as bogland for flora preservation. Other suggestions were for the preservation of remnants of the ancient forests which formerly covered Ireland and their fauna.

Subsequent speakers included Miss W. J. Sayers A. H. Davison, H. P. Swan, Colonel Berry, Rev. E. M. Gumley, Dr. Ll. Praeger, and H. L. Glasgow (President Tyrone Club).

Co-operation between the various Clubs was the next matter discussed. the speakers being, in addition to those already mentioned, Wm. Crawford, W. P. Brown, and W. D. Cousins.

Colonel R. G. Berry then gave an address on "The Divine King," pointing out that in primitive societies the king was looked on as a god, a belief handed down through the ages.

Before separating, the chairman returned the thanks of the Conference to the Tyrone Club and especially to J. D. Hopper for the trouble taken in organising the Conference.

H. L. Glasgow was also thanked for the guide he had prepared to Cookstown and district in connection with the Conference, copies of which had been given to each member.

Early next morning the members were astir for a long day excursion, and, leaving Cookstown, the road was taken to Donaghmore to examine the High Cross standing in this pretty village.

Moving on through Castlecaulfield, the next stop was at Seskilgreen to examine the megalithic remains and the celebrated stone ornamented with spirals and concentric circles, S. D. Glassey giving a most interesting and informative talk.

Proceeding onwards, Cecil Demesne was reached and lunch enjoyed. This demesne is a lovely place, well wooded and well watered, a river flowing down alongside the main drive. It lies under the shadow of Knockmany Hill, which was ascended after lunch. The climb was steep and arduous, the path leading up through the young conifer plantations of the Government of Northern Ireland, but when the top was reached the labour of ascending was forgotten in the magnificent view.

On the top of Knockmany is a great prehistoric cairn which has been much written about by archaeologists. The stones of the cairn, protected by an unnecessarily high and close wooden railing, are ornamented with circles, spirals, etc., as at Seskilgreen and New Grange. Would that these mysterious scribings could be deciphered!

Knockmany was left with reluctance and the road taken to Clogher and Dungannon, but time only permitted a call at the Church of the Volunteers.

After dinner a further meeting was held in the Technical School lecture hall, which took the form of a conversazione. The Tyrone Club had a fine display of exhibits, from the stone Celts of Neolithic man to samples of coal from the newly-opened mine in the neighbourhood.

The scientific results of the day were discussed: plant life, by Miss W. J. Sayers and Dr. Ll. Praeger; geology, by A. H. Davison and Thomas Greer; a talk on Querns

was also given by H. P. Swan. An excellent tea was most hospitably provided by the Tyrone Club, the meeting concluding at a late hour, having first decided to hold the Conference next year at Londonderry, and the united excursion in May to Enniskillen.

On the last day of the Conference the forenoon was free from official arrangements, and for the afternoon it was decided to divide the members into two excursion parties, one group in the care of A. Albert Campbell to visit the celebrated Ogham stone on the foothills of the Sperrins, and the other, with J. Skillen as conductor, to visit Arboe.

After dinner at night the members departed to their various homes.



WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session began with a Conversazione held in the Assembly Hall, Fisherwick Place, on Tuesday, 16th October, 1934, at which there was a very large attendance of members and friends, including representatives from the Dublin, Route, Omagh and Tyrone Clubs. Tea was served from 6.30 to 7.45 p.m.

The Exhibits included:—

BOTANY.—Miss M. W. Rea, Myxomycetes; Queen's University (Agricultural Department). Some plant diseases and the organisms which cause them; Rev. W. R. Megaw, Living Mosses; Miss W. J. Sayers, Lime-loving and Lime-avoiding Plants; Capt. C. D. Chase, Some Mediterranean Flowers; A. Turner, Common Conifers: how to identify them; C. R. Nodder, Types of Fruits in the Rose Family.

GEOLOGY.—Miss Nora Fisher, Series of Fossils from Estuarine Clay Deposit at Greenisland, Co. Antrim; A. M'I. Cleland, Eocene, Greensand and Liassic Fossils; Mrs. Mina Davison and J. J. Hartley, Cushendun Crystals; Alex. H. Davison, Rocks met with on 1934 excursions; Granite intrusions near Aberdeen.

ZOOLOGY.—W. M. Crawford, Indian Butterflies, Beetles from the Lennoxvale Pond Survey, Pair of Peregrine Falcons; Belfast Municipal Museum, Life History Cases of Plant Galls; C. D. Deane, James Orr and J. A. S. Stendall, Birds of the Shore in natural setting; Lennoxvale Pond Survey Exhibits; Ranald MacDonald, Exotic Land and Freshwater Mollusca and living *Paludestrina jenkinsi* Smith from Belfast Waterworks; R. J. Welch, Xerophile land shells; R. M. Leman, M.S.R., Radiograms of Tortoise, Mouse (enlarged), Passion Flower; Radium needles and heart; A. M'I. Cleland, Cuttle Bones and Curved Limpets (Selsey Beach, Sussex), Echinoderms (S. Pacific), Burrow of Earthworm.

ARCHAEOLOGY.—The President, Flakes, Implements and Pottery; Club Survey Committee, Map showing distribution of Megaliths in Counties Antrim, Armagh, Down and

Tyrone, noted to date, together with Models of typical Megaliths; Dr. Stewart (Portglenone), Inscribed Quern tops, etc.; Angus J. MacDonald, Stone Implements, etc., from North of Ireland; J. Theodore Greeves, Bronze Knife from near Con O'Neill's Castle, Castlereagh.

MICROSCOPY.—Miss K. Bourke and G. C. Reilly.

PHOTOGRAPHY.—Dr. R. H. Hunter, Photographs (Enlargements) of Animals at Bellevue Zoological Gardens; A. R. Hogg, Night Photographs of Italian and Spanish Gardens at Mount Stewart. and Slides of Excursions of B.N.F.C.; A. M'I. Cleland, Cave Hill, Shaw's Bridge, Minnowburn, Donard Demesne; Miss W. J. Sayers, Snapshots of West of Ireland; J. S. Loughridge, the Mourne (Infra-Red Photograph); R. J. Welch, Irish Ethnography.

MISCELLANEOUS.—Miss Lily C. Rea, Native Malay and Burmese Silver; William Savage, Facsimile of the oldest known Harp in Europe, commonly called the O'Brien Harp, Engravings; Miss N. Mawdsley, Two Samplers, one signed and dated 1776, one unfinished.

JUNIOR DIVISION EXHIBITS collected during this year.—Divis Plants, Seila and Eileen Lord; Chrysalids, George Burns; Antrim Flint Implements, Derwent Gribbon; Norfolk Gun Flints, Margaret Downer; Autumn Fruits, Owen Clarke; Surprise Exhibit, Eleanor Clarke; Ferns and Seaweeds, Dorothy and Edna Nelson; Living Irish Ferns, Pressed Foreign Ferns, A day's natural history work in Spring, Summer and Autumn, Felicity Bolton; Irish Shells, Fruits, Leslie Stendall; Minerals from Carnmoney, Bryce Duffin; Holiday Photographs, Suzanne Hassan; Photographs of Ulster Birdlife, Campbell D. Deane; Death's-Head Hawk Moth from Lisburn, Wasps' Nest, C. D. Nodder; Land and Freshwater Shells, Antiquarian Photographs, etc., Noel Gregg; Fossil Fish (Drain's Bay), Geological Specimens, Shells, T. C. Tuton; British Shells, Ethel Garrett; Butterflies and Moths, Vivian Gotto and David Searle; Living Zoological Exhibit, Tony Searle; Essays on Ancient Forts, by several Junior Members; Coins and Tokens, Roy Henderson.

FRIENDS' SCHOOL, LISBURN.—Natural History Society Exhibit by invitation of the B.N.F.C. General Committee; Survey of Ringdufferin Estate: Bird Census Map H. Hobson, Vegetation Map S. Harding; Bird Census Map of

F.S.L. Grounds, E. Webb; Drawings of Bird Families: Tit Family D. Green, Finch Family B. M'Cleery, Crow Family M. Lamb and J. Walker; Common Nests of the Crow Family, W. Sinton and F. Mitchell; Heron's Nest (one of largest British Birds), B. Hobson; Golden Crested Wren's Nest (smallest British Bird), R. Henning; Nests of Shellduck, Grouse, Curlew and Rock Pipit, B. Simpson; Model of Housetop with Nests of Swift, House Sparrow, House Martin, Swallow, Starling, J. A. Benington, B.Sc. (Hon. Sec. of Society); Moths and Butterflies, M. Lamb and S. Harding; Conifers with Cones, P. Baillie and J. Tyler; Cocoons, P. Mayes and D. Houston.

The Business Meeting began at 8.45. The Hon. Secretary announced the names of 25 new members and two junior members, who were unanimously elected.

The President (C. R. Nodder), amid loud applause, then presented the Club Medal to Professor Gregg Wilson.

The prizes for the junior division exhibits were awarded as follows:—Two equal prizes for exhibit of living zoology, Tony Searle and George Burns; botanical exhibits, Felicity Bolton, Dorothy and Edna Nelson, Leslie Stendall; exhibits of general natural history interest, T. C. Teuton, Derwent Gribbon, C. D. Deane, Vivian Gotto, Ethel Garrett and Eleanor Clarke.

Certificates were awarded to Sheila and Eileen Lord, Owen Clarke, Margaret Downer, Brice Duffin, Noel Gregg, David Searle and Felicity Bolton.

A special certificate of merit was awarded to the Natural History Society of the Friends' School, Lisburn.

The evening concluded with a display of slides of the summer excursions shown by Mr. A. R. Hogg.

WORD LORE AND FIELD CLUB INTERESTS.

The first ordinary meeting of the session was held on Tuesday, 6th November, 1934, at 8 p.m., when the President (C. R. Nodder) delivered his Presidential Address on the above subject. Dr. R. Ll. Praeger was in the chair.

A little thought, said Mr. Nodder, would show that some of the most interesting subjects for study were to be found at the border-lines between various fields of knowledge. Thus archaeology and geology met and provided many fascinating problems all the way from the period of the Ice

Age down to the dawn of history. Botany, geology, and zoology must all contribute to the study of the problems of the distribution of plants and animals and endeavour to answer such questions as to why the blue-eyed grass was found in America, in Greenland, and in Ireland, but not in Great Britain.

The study of the ancient migrations of peoples involved both the archaeologist and the philologist. It was probably correct to say that the latter had contributed at least as much as the former in this connection.

Philology, or word lore, was of great interest in itself quite apart from its relation to other subjects. "A good dictionary, particularly an etymological dictionary, is not a dry-as-dust compilation. We may indeed often find some sly humour in the definition of a word. The following definition is taken, word for word, from the Concise Oxford Dictionary—'Mondayish—(of clergy) indisposed as result of Sunday work; (of others) slack as result of Sunday holiday.'"

C. R. Nodder was warmly thanked for his address.

LANTERN NIGHT.

A meeting was held in the Old Museum on 20th November, 1934, at 8 p.m., when lantern slides of the summer excursions were shown.

POND LIFE.

At a meeting held in the Old Museum on 4th December, 1934, at 8 p.m., Emeritus Professor Gregg Wilson delivered a lecture on the above subject, the President (C. R. Nodder) being in the chair.

The lecturer began by discussing the peculiarities of pond animals that result from the conditions in which they live, and contrasted the inhabitants of the pond and those of the sea-shore. The absence of tides in ponds and the comparative calmness of the water accounted for many of the differences. But in the ponds there are dangers to life arising from frost and drought, and devices abound to secure survival of species in spite of these. The plants and animals of the pond were surveyed, and in each case it was shown that besides the real water organisms there are immigrants from the outerworld. Series of these intruders were found to show progressive adaptation to the new environment.

The devices adopted by insects and other air-breathers to effect respiration while under water were specially studied. It was also shown that there are indications that both plants and animals have produced emigrants, which have become more or less adapted to life on dry land. The lecturer claimed that we have in ponds some remarkable illustrations of the restlessness and adaptability of life.

Besides the President those speaking to the lecture were J. A. S. Stendall, Rev. W. R. Megaw, A. H. Davison and D. J. Carpenter.

GEOLOGICAL NIGHT.

This meeting was held in the Old Museum on Tuesday, 18th December, 1934, at 8 p.m., when the Report of the Delegate to the Centenary Meetings of the Edinburgh Geological Society was presented. Papers were also read on "Neo-anthropic Belfast, or Ups and Downs," by A. H. Davison; "Underground connections between Lough Mask and Lough Corrib, Co. Galway," by J. J. Hartley; "Kilwaughter Quarries," by A. M'I. Cleland.

CLUB SURVEY OF ANTIQUITIES.

The work of this Survey formed the object of a meeting held in the Old Museum on Tuesday, 22nd January, 1935, at 8 p.m., the President (C. R. Nodder) being in the chair.

The project was first mooted by Professor Charlesworth during his presidency of the Club, and his energy launched the work. The maps have been prepared by Miss Gaffikin, organiser of the survey, who has worked untiringly for four years.

Miss Gaffikin said the maps were based primarily on the Ordnance Survey Report of Antiquities and the sites taken from the six-inch maps in the Public Record Office. For the map of ring forts, crannogs, and cashels the old 1834 O.S. maps had been consulted, as they marked numerous forts which had since been destroyed. In addition to the official records the Club's maps also represented the excellent work of the survey in reporting hitherto unknown and unmarked antiquities. The maps must be regarded as preliminary. Even since they were handed in to be photographed another tour of inspection had necessitated the alteration of one mark and the addition of others.

If they represented the work already accomplished they also represented the work that was still to be done. With regard to megalithic monuments and earthworks the terms " cairns " and " fort " covered a variety of types, and any uncertainty as to the exact nature of an antiquity should be reported and a thorough investigation made, if possible, by an expert.

That occasion, concluded Miss Gaffikin, might be a fitting opportunity to acknowledge a debt of gratitude to Dr. Chart and the staff of the Public Record Office for affording facilities in the use of records, maps, etc. Thanks were also due to the Curator and staff of the Belfast Municipal Museum. The Club also owed a debt to the helpers in the country districts, whose invaluable work had contributed so materially towards the success of the survey.

E. Estyn Evans, M.A., F.S.A., of Queen's University, who spoke on the survey from an ethnographical and geographical aspect, remarked upon the geographical and general scientific interest of the maps prepared. The work, he said, had happily coincided with a period of intensive excavation of antiquarian sites, so that it was now possible to check the conclusions drawn from distributional evidence by the actual cultural finds made. In particular, a primary class of megalithic monument dating from 2000 B.C. had been " discovered " and assigned to its chronological horizon. Northern Ireland proved to be by far the richest region in any country north of Spain in that respect. Twenty-four monuments had been identified, and there were probably still more unclassified.

That alone was a scientific achievement of the first rank. The maps showed that these and other early monuments were confined to the upland areas of the province. Gradually as forests were cleared man came to occupy the lowlands, but no appreciable advance was made until the early days of iron, from 500 B.C. Then the maps suddenly displayed a modern appearance, with the settlement areas clustering in the lowlands. Already, however, the human geography of Ireland was marked by the extreme dispersion of habitations, a feature to which the name " Celtic " had been applied by students of demography. That was a subject of great interest in its bearing on social conditions; the village of South England, with its system of agrarian co-operation, was apparently alien to Ireland, and so was the town, which was the historical expression of advancing village growth. In so many ways the maps helped the

student of social history; it might be said that they forced the "Dark Ages" of Ireland's development into so-called historic periods for which there was as yet no scientific check upon the semi-legendary records of pre-Norman days.

One of the three maps so far completed illustrated the early days of Norman penetration, for which the archaeological evidence consisted of earth mounds known as mote-and-baileys. The location of the areas first settled by the Anglo-Normans was illuminating. While naturally largely coastal, because of the Anglo-Normans coming from overseas, they showed a concentration in the South Antrim area which foreshadowed the development of industrial centres in later centuries.

The talk was illustrated by lantern slides of the maps so far prepared and of antiquities "discovered."

Professor Charlesworth and others spoke subsequently.

RESEARCHES ON BOGS AND OTHER RECENT DEPOSITS.

A meeting was held in the Old Museum on 5th February, 1935, when A. Farrington, B.E., gave a lecture on the above subject. The President (C. R. Nodder) was in the chair and there was a large attendance.

Mr. Farrington spoke of the great value of the researches started during 1934 by a committee representative of many branches of science and of all parts of Ireland. The scope of the research embraced an investigation of all recent deposits, peats, clays, raised beaches, and river gravels, and called in the aid of geology, botany, zoology and archaeology. All these sciences would benefit equally.

The lecturer went on to describe the earlier investigations in Ireland, noticing particularly the remarkable work done 40 years ago by Dr. R. Lloyd Praeger on the clays of Belfast Lough and the raised-beach of Larne.

The object of the research, he said, was to examine the plant remains, leaves, seeds, and pollen, and the animal remains occurring in the beds of clay, etc., When this had been done it would be possible to identify the different layers and to show what beds in one part of the country corresponded with those found elsewhere.

Ultimately a scale might be worked out by means of which it would be practicable to assign definite dates to the formation of the various beds, and so to proceed to a clear understanding of the history of the flora and fauna of Ireland. In this connection the work of the archaeologist was of the greatest importance, for it was by using the finds of archaeological objects as a basis that accurate dates might be discovered.

The lecturer described the various methods used and gave a summary of the work done during 1934, when over 40 sites were examined, eight of them in Northern Ireland. Thirty of these sites were of archaeological and the remainder of natural historical interest, the most important of the latter being the well-known deposit at Ballybetagh, in south County Dublin, where many remains of the Irish elk had been found.

The National Museum, Dublin, supplied a comprehensive list of recent discoveries of archaeological objects, which formed the basis of the survey. The majority of the Northern sites were examined under the guidance of Mr. C. Blake Whelan, M.A., the remainder being worked in conjunction with the Harvard Archaeological Expedition. The research was led by Professor K. Jessen, of the Royal University of Copenhagen, one of the foremost European authorities.

The Committee intended to continue the work for two years more, by which time, it was hoped, the research would be firmly established in Ireland. The training of selected students was one of the chief aims for which the Committee was founded.

The thanks of the Club, proposed by Professor J. K. Charlesworth, seconded by C. Blake Whelan, were passed with acclamation and conveyed to Mr. Farrington by the President.

DALRIADA IN STONE, STORY AND SONG.

A meeting was held in the Old Museum on 19th February, 1935, at 8 p.m., when Samuel Henry, F.R.S.A.I., gave a lecture on the above subject. The President (C. R. Nodder) was in the chair.

There was a large attendance of members and friends, who listened with great delight to a racy survey of the past history of Dalriada, as exemplified in song and story. The

lecture was enriched by a large number of beautiful slides and Mr. Henry accompanied his songs on his violin.

In addition to the President, the lecture was spoken to by J. Skillen and J. A. S. Stendall.

GEOLOGY FOR BEGINNERS.

At a meeting in the Old Museum on 5th March, 1935, at 8 p.m., R. J. Welch delivered a lecture on above subject, the Vice-President (J. Skillen) being in the chair.

The lecture was given in the lecturer's inimitable style, and was illustrated with many beautiful slides of scenery and geology, mostly of his own taking. It covered the whole range of geology which can be studied so well in the topography of the two counties of Antrim and Down, to take only the areas in close proximity to Belfast.

The speakers to the lecture were A. M'I. Cleland, J. A. S. Stendall and Dr. Gita Ram, Director of the Lahore Museum, India.

BOTANICAL NIGHT.

On Tuesday evening, March 26th, 1935, three short talks on Botany were given to the Club by members of the Botanical Section. H. M. F. Asher spoke about "Chromosomes and Genes," Alex. Turner dealt with "The Romance of a Packet of Seeds," while Miss Frances Adams gave an account of her visit to "Linnaea," the Alpine Biological station near the Great St. Bernard.

EXPLORATION OF BALLINTOY CAVES.

At a meeting held in the Old Museum on 9th April, 1935, at 8 p.m., Dr. J. Wilfrid Jackson, of Manchester Museum, gave a lecture on further cave explorations at Ballintoy, the President (C. R. Nodder) being in the chair.

Dr. Jackson said that during the first fortnight of June, 1934, excavations had been resumed at Potter's Cave, Ballintoy, Co. Antrim, the site of the discovery in 1933 of the unique clay figurine of a mother goddess, now in Belfast Museum. The excavations were to the west of the section examined in 1933, and were again made possible through a grant from Belfast Corporation.

On the removal of one foot of blown sand and four feet of chalk-rubble a layer of charcoal debris and dark earth

nine inches thick was found to overlies many large stones, which on further examination proved to be the remains of a large pottery kiln. The structure was irregular and built in two rows of large slabs of chalk and basalt boulders, and from the material surrounding it numerous sherds of Iron Age pottery were obtained. The usual debris of food, several flint flakes, and potters' clay were also found.

Another most interesting find in the cave was a flat bone implement, perhaps a piercer of some kind. In a deep pit sunk below the level of a stone fireplace charcoal layers were found to contain animal bones, limpet shells, but no pottery. The presence of a great thickness of chalk-rubble indicated severe climatic conditions at the time of its accumulation. One felt tempted to correlate it with the change from the warm and dry conditions of the Neolithic and Bronze Ages to the wet and cold climate of the closing phase of the Bronze Age, roughly 700 B.C.

The lecturer then described further finds in a small rock shelter to the west of Potters' Cave which included sherds of Iron Age pottery, flint blades, and a polished bone tube. The recurrence of flint blades seemed to indicate the continued use of essentially the same type of implement from the Neolithic Period. Another coastal cave at Sandy Port, Ballintoy, was excavated and proved to be one of the most important and interesting of the coastal caves, as it was quite undisturbed except at the entrance. It was in chalk and had an opening in the roof at the south side, from which it was called Chimney Cave. The finds in front were difficult to correlate with any particular cultural level, but on working forward a most interesting section of deposits was obtained. On an occupation floor under 18 inches of blown sand bones and teeth of ox and sheep, shells of limpets, numerous head bones of cod, and many sherds of Iron Age pottery were found. At six inches below the occupation layer a remarkable crazy-pavement of large chalk slabs and basalt boulders was encountered. This covered an area of about 80 square feet.

Like the pottery, the flint-flakes in general agreed with those of the kitchen middens of Whitepark Bay, and the evidence suggested an occupation of a certain level of the cave by migrants from Whitepark Bay. Those early cave-dwellers, probably primitive fishing-folk, had found plenty of raw material for their implements among the pebbles of the raised beach fringing Sandy Cove and had an abundant choice of food.

VISITS TO THE MUNICIPAL MUSEUM AND ART GALLERY.

On four successive Saturday afternoons, from 1st to 22nd December, members of the Club, in large numbers, attended at the Museum, Stranmillis Road. The Museum staff acted as conductors. Exhibits in geology, zoology, botany and archaeology were examined and short descriptive lectures given. The fourth visit on the 22nd was to the Art Gallery.

BOTANY DEMONSTRATIONS.

In continuation of the Demonstrations commenced last year (in the Department of Zoology), a set of four lectures on "Ten Groups of Plants" were delivered in the Botanical Laboratory, Queen's University, by Professor James Small, D.Sc. These took place on 14th, 21st and 28th January, 1935, and 4th February, at 8 p.m. The lectures were well attended.

ANNUAL MEETING.

The Annual Meeting was held in the Old Museum, College Square North, on Tuesday, 16th April, 1935, at 8 p.m., the President (C. R. Nodder) in the chair. The Reports which follow were presented and were all unanimously adopted:—

ANNUAL REPORT.

The Committee have much pleasure in presenting their Seventy-second Annual Report and have again to record a very successful Session in every department of the Club's work. The number of members at present on the register is as follows:—3 Life Members, 5 Honorary Members, 7 Corresponding Members, 511 Ordinary Members, 132 Juniors—total, 658.

A list of those members who have died during the past year is appended to this report. Their deaths we deeply regret, particularly that of Robert Bell, an Honorary Member and a Medallist of the Club, which he joined in 1893, 42 years ago, and whose interest in the Club and work on Geology and Anthropology are familiar to all.

The Honorary Secretaries of our five affiliated Clubs also report good progress. The united excursions (two held last year) and the Annual Conference at Cookstown gave an opportunity of discussing matters of mutual interest.

The following members of Committee gave lectures in the various towns where the Clubs meet:—The President, Miss W. J. Sayers, Rev. W. R. Megaw, D. J. Carpenter, A. M'I. Cleland, J. Skillen, Prof. Charlesworth, J. A. S. Stendall, R. J. Welch and Prof. Gregg Wilson. These lectures were much appreciated by the affiliated Clubs, and our thanks are due to the above named for their services willingly given.

During the year ten meetings of Committee were held, the following being the attendances:—

Miss Bourke	...	7	Dr. Loughridge	...	8
A. A. Campbell	...	10	Rev. W. R. Megaw	...	6
D. J. Carpenter	...	4	C. R. Nodder	...	10
Prof. Charlesworth	...	2	Mrs. Nodder	...	9
Capt. Chase	...	4	James Orr	...	7
A. M'I. Cleland	...	7	G. C. Reilly	...	8
W. M. Crawford	...	7	Miss W. J. Sayers	...	10
A. H. Davison	...	9	J. Skillen	...	10
Miss Gaffikin	...	6	J. A. S. Stendall	...	10
J. J. Hartley	...	3	Wm. Sweeney	...	8
R. G. Henderson	...	9	R. J. Welch	...	2
R. S. Lepper	...	7	Prof. Gregg Wilson	...	5

During the winter four lectures on "The Groups of Plants" were given in Queen's University through the kindness of the Vice-Chancellor and Professor James Small, D.Sc., who delivered the lectures. The Committee thank all who helped, particularly Dr. Small for the time and trouble taken in preparing the lectures and providing microscopical slides for illustration.

The summer programme was carried out in its entirety and the good fortune of the Club in the past, in respect of weather, held good during the excursions.

Our representative at the Centenary Meeting of the Edinburgh Geological Society was A. M'I. Cleland, who gave, at one of our winter meetings, an interesting report of the proceedings.

The Winter Session opened with the Annual Conversation which was held in the Assembly Buildings. The attendance, we are pleased to report, was much above the average, the exhibits being numerous and interesting.

The lectures delivered during the winter half of the session have been described on preceding pages. It may be noted that two of them were in connection with the Club's Survey of Antiquities and the Quaternary investigation, two avenues of research which have recently been opened. The lectures were illustrated with lantern slides and well attended.

In conclusion the Committee desire to record their best thanks to the Press for reports of our excursions and meetings, and to the various scientific societies who have supplied us with copies of their publications, also to the following for kindness shown to us during our summer excursions:—Rev. E. H. Blackwood-Price, W. Ross Henderson, J.P., H. J. Lennon, N. Boyd, Esq. (for permission to visit the mansion grounds and the ancient castle at Benburb), H. G. Tempest, and Rev. Father M'Kee, C.C., of Dundalk, and Mrs. Mary E. Hackett, of the Dublin Club.

JOSEPH SKILLEN, } *Hon.*
WM. SWEENEY, } *Secretaries.*

DECEASED MEMBERS.

Michael C. Andrews.
Robert Bell.
Prof. John Earls.
David Gilchrist.
W. H. Lavery.
H. C. Montgomery.
Miss Charlotte M. MacCullough.
Dr. Robert F. Scharff.

HON. LIBRARIAN'S REPORT.

The work continues as usual and the list of Exchanges is maintained as in former years.

Further progress has been made in completing sets that were found deficient and another large number has been bound, so that the books are gradually getting more and more convenient of access.

The exchange list will be found at page 349.

W. M. CRAWFORD.

REPORT OF HON. RECORDING SECRETARY.

The records of a fairly eventful year have mostly already appeared in print and many may be familiar to members. Notwithstanding, my duty as Recording Secretary is to place a concise report before you dealing with all such matters and this I do in the hope that it will not only satisfy but act as a stimulus to members as a whole, especially to those who are fortunate enough to possess the energy of youth.

ZOOLOGY.—(For details regarding Beetles, Butterflies and Moths and Birds, see the special pages of records at page 353 *post.*—Ed.)

Professor Gregg Wilson continues his useful work on the study of mosquitoes, and during last summer members were able to assist in making an investigation of Lennoxvale pond under the Professor's guidance. While no outstanding records were made, the few energetic members who availed themselves of this opportunity were amply rewarded by a substantial gain in knowledge.

BOTANY.—Rev. W. R. Megaw has added a new station for the Parsley Fern, *Cryptogramme crispa* Br., in Co. Down, on the slope of Cloughmore, near Rostrevor.

The same worker has noted 19 new vice-county moss records, most of which were gained while taking part in the Long Excursion to Galway.

Carex contigua Hoppe., a rare sedge in our area, is recorded from several stations near Greenisland, Co. Antrim, by Miss Nora Fisher.

In view of a projected new edition of the *Flora of N.E. Ireland*, in which Dr. R. Ll. Praeger will primarily be interested, a splendid opportunity now presents itself for the field botanists to do some useful work. Dr. Praeger will need all the help he can get and I suggest that a special effort should be made to this purpose.

ARCHAEOLOGY.—Several excavations have been undertaken during the year by members of the Club and others in Ulster, with excellent results, descriptions of which have either appeared or are due to appear in various Journals. I cannot refrain from specially mentioning Miss Gaffikin's wonderful service in the field of archaeology; to her we owe a debt of gratitude.

Another investigation that looms large in Ireland to-day is what is known as the Quaternary Research, which constitutes a rare combination of biology, geology and archaeology. Very little progress has been made in Ulster as yet but a rather heavy piece of excavation work is contemplated in the near future in a bog near Downpatrick. Some volunteers will be necessary for supervisory work and those responsible for the project should find little difficulty in obtaining them from a Club so large as ours.

It seems to me very unfortunate that out of a membership such as the Club has, there are comparatively few working members. This, I believe, is not altogether due to lack of interest but rather of opportunity, arising from a variety of causes with which the Club as a whole can and should grapple. It is no use saying there is no longer any place for the amateur now that the professional has encroached to such an extent upon his preserves. Such a view is fallacious as is fully evidenced by work that has been done by some of our more active members within the past year.

I do say, however, that more systematic field work should be done in both Zoology and Botany.

J. A. S. STENDALL.

BOTANICAL SECTION.

Twenty-seven members paid subscriptions to the section. Two excursions were arranged during the summer:—

ROWALLANE, SAINTFIELD.—July 7th, 1934. A party of 34 members and friends travelled by motor-coach to Rowallane demesne. By the kind permission of Mr. H. Armytage Moore, a very enjoyable afternoon was spent in the rock gardens.

The very rare variety *rhystophylla* of the moss *Catharinea angustata* was found at the rock garden by Rev. W. R. Megaw. This plant was found in 1908 by the late Canon Scott near Saintfield. It has not been found anywhere else in Ireland. In Britain it is recorded only from Sussex.

Cicuta virosa (Cowbane) was another interesting find. This plant belongs to the Umbelliferae family and is poisonous; the roots have been mistaken for parsnips.

LAMBEG TO LISBURN.—August 25th, 1934. This excursion was held jointly with the Archaeological Section. The party went by train to Lambeg, then walked along the Lagan Canal to Lisburn. (Much interest was shown in the "bottle garden" at Chrome Hill.) Plants noted along the canal included:—*Lycopus europaeus*, *Stachys palustris*, *Alisma plantago*, *Butomus umbellatus*.

KATHLEEN BOURKE, *Hon. Secretary*.

REPORT OF SURVEY OF ANTIQUITIES.

The idea of a Club Survey of Field Antiquities was first mooted by Professor J. K. Charlesworth when President of the Field Club, and it was his energy that got the scheme on foot. The results so far achieved are of the highest scientific value. No less than 500 great stone monuments of the Neolithic and Early Bronze Age have been listed and their distribution mapped on one-inch Ordnance sheets. The numbers of Iron Age remains recorded for the Six Counties probably approach 2,000. We are thus enabled to prepare maps showing the inhabited areas of the various periods; these maps have been drawn by Miss M. Gaffkin, the organizer of the Survey, who reported at the meeting on the present position of the undertaking.

REPORT OF THE GEOLOGICAL SECTION.

There is not very much to report for the Session, though the subject of Geology has not been overlooked.

On Saturday, July 21st, the Club made an excursion to the Giant's Causeway, walking along the top of the cliffs as far as Pleaskin Head. This is always a profitable and pleasing tour, as there is no more magnificent stretch of cliff scenery on the Antrim coast than the short course from Pleaskin (400 feet) to the Causeway, head rising beyond head, and bay after bay opening out.

On Monday and Tuesday, 3rd and 4th September, A. M'I. Cleland attended, as the appointed delegate of the Club, the Centenary Meetings of the Edinburgh Geological Association. The session was a most interesting one, including addresses by delegates from Canada, New Zealand, Sweden, Norway, etc.; also a splendid geological tour around Edinburgh. The hospitality extended to the delegates by the Edinburgh people was beyond all praise.

A. M'I. CLELAND, } *Hon.*
J. J. HARTLEY, } *Secretaries*.

REPORT OF SECTION OF ZOOLOGY.

Eight members paid subscriptions to the Section during the year.

The work of the Section as a whole has been disappointing, but individual members have done a good deal of work.

Excursions were held to Monlough and Ballintoy.

The Galway Club excursion supplied a variety of material.

JAMES ORR,	} <i>Hon.</i>
JAMES S. LOUGHRIDGE,	
	} <i>Secretaries.</i>

ARCHAEOLOGICAL SECTION.

The Archaeological Section held three field meetings during the summer, all of which were well attended.

On 23rd June a visit was paid to Nendrum, calling at Sketrick on the way home. General regret was felt at the gradual disintegration of Sketrick Castle by an overgrowth of ivy.

The Section met at Greyabbey on 11th August, and, following a general account of its origin and history, a detailed examination was made of the remains of this interesting Cistercian foundation.

The Botanical and Archaeological Sections held a combined excursion to Lisburn on 25th August.

On 22nd January the Section provided the programme for a meeting of the Winter Session.

The Archaeological Section now numbers 83 members, 11 of whom joined during the year.

A. ALBERT CAMPBELL,	} <i>Hon.</i>
MARY GAFFIKIN,	
	} <i>Secretaries.</i>

REPORT OF JUNIOR DIVISION.

The total number of junior members on the list is 117, the number resigned during the year being 10, new members elected 15, and those struck off for non-payment of subscriptions 10. The number transferred to the senior list is 13.

The outstanding features of the year's work were the number of very good exhibitions of the unaided work of individual junior members at the *Conversazione* and, in February last, the success of a special junior *Conversazione*

suggested and sponsored by A. H. Davison, who is Chairman of the Junior Division Committee. At this meeting junior members brought their collections and had intimate talks about them with Miss Rea, Messrs. Welch, Davison, Skillen, Carpenter, Stendall, Nodder, J. A. Benington, and Angus and Ranald Macdonald.

The meetings held during the year were:—

1934.

- April 14—Farrell's Fort. Conductor, E. N. Carrothers.
 May 19—Botanical walk to Holywood. Conductor, Capt. Chase.
 June 2—Royal Ulster Agricultural Society Show at Balmoral.
 Sept. 8—The Mourne slopes and shore at Ballagh, Co. Down. Conductor, A. H. Davison.
 Sept. 22—Carnmoney Fort. Conductor, Angus Macdonald.
 Oct. 6—The Club Fungus Foray, Saintfield.
 Oct. 13—The Lagan and grounds of Lambeg and Glenmore houses.
 Oct. 16—Conversazione.

1935.

- Feb. 25—Special Junior Division Conversazione in Old Museum.
 March 9—Footsteps of St. Patrick excursion. Conductor, A. H. Davison.

W. NODDER, *Hon. Secretary.*

CLUB MEDALLISTS.

1923. William Swanston, F.G.S.
 1924. Nevin Harkness Foster, F.G.S., M.R.I.A.
 1925. Nathaniel Carrothers.
 1926. Robert Bell.
 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
 1928. R. J. Welch, M.Sc., M.R.I.A.
 1929. } No award.
 1930. }
 1931. S. A. Bennett, B.A., B.Sc.
 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
 1933. A. M'I. Cleland.
 1934. Professor Gregg Wilson, M.A., M.R.I.A., D.Sc.,
 O.B.E.

BELFAST NATURALISTS' FIELD CLUB.

RECEIPTS AND PAYMENTS ACCOUNT FOR YEAR ENDED 31st MARCH, 1935.

RECEIPTS.		PAYMENTS.	
Balance on hands at 31st March, 1934	... £16 17 0	Printing and Stationery	£58 13 0
Subscriptions received during year :—		Postages	47 1 4
436 @ 6/-	... £130 16 0	Incidental Expenses, Bank Charges, Clerical Assistance, etc.	7 6 6
25 @ 3/- (half year)	... 3 15 0		£113 0 10
Arrears of previous years, 51 @ 6/-	£134 11 0	Hire of Lecture Hall and Committee Room	17 12 6
Paid in advance for 1935/36, etc., 15 @ 6/-	15 6 0	Lanternist's Fees, including part of 1933-34	13 10 0
	4 10 0	Lecturers' Travelling Expenses	3 11 2
Entrance Fees, 47 @ 5/-	154 7 0	Conversation Account (exclusive of Printing and Postages)	6 8 7
Excursions Account (without charging Printing and Postages)	11 15 0	<i>Irish Naturalists' Journal</i> , Affiliation Fee	3 0 0
Club Badges sold, 19 @ 2/-	55 11 1	"National Trust," Donation Buttermere Appeal	2 2 0
Floras sold, 9 @ 3/6	1 18 0	Expenses of Delegate to Centenary Meeting of Geological Association at Edinburgh	2 2 0
Junior Division Subscriptions	1 11 6	Junior Division Expenses :—	
	3 0 0	Typing Circulars, writing Certificates, printing List of Excursions and Winter Programmes, Postages, etc.	£8 15 8
		Hire of Hall for Junior Conversation	1 7 6
			10 3 2
		Balance with Northern Bank, Ltd., at 31st March, 1935	£171 10 3
			73 9 4
			£244 19 7

Audited and found correct.

A. ALBERT CAMPBELL.

CHARLES R NODDER.

12th April, 1935.

R. G. HENDERSON, Hon. Treasurer.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1936
(SEVENTY-THIRD YEAR)

SERIES II.
VOLUME IX.



PART VIII.
1935-36.

EDITOR:
W. M. CRAWFORD, F.R.E.S., F.Z.S.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-THIRD YEAR, 1935-36.

GENERAL COMMITTEE.

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JOSEPH SKILLEN.

Vice-President :

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Hon. Secretaries Geological Section :

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JAMES ORR, M.B.O.U.

Hon. Secretary Archaeological Section :

A. ALBERT CAMPBELL, F.R.S.A.I.

Hon. Secretary Survey of Antiquities Committee :

Miss MARY GAFFIKIN.

Hon. Secretary Junior Division :

Mrs. C. R. NODDER.

Members of Committee :

Retire 1936.

D. J. CARPENTER, A.R.C.SC.L.
Prof. J. KAYE CHARLES-
WORTH, D.SC., M.R.I.A.,
F.G.S.
R. J. WELCH, M.SC., M.R.I.A.

Retire 1937.

Miss W. J. SAYERS, B.A.
Emeritus Prof. GREGG WILSON,
O.B.E., M.A., D.SC., M.R.I.A.
HUGH CAIRNS, B.SC., M.AGR.

Retire 1938.

Miss E. BARRY.
R. MacDONALD.
C. R. NODDER, M.A.

Honorary Secretaries :

W. G. R. SKILLEN, 25 Stranmillis Gardens.
WM. SWEENEY, 105 Cliftonville Road.

PROCEEDINGS.

SUMMER SESSION.

LIMAVADY AND ROEPARK.

Date—Saturday, 4th May, 1935. Conductor—The President.
Number present, 60.

This excursion was a joint one with the Derry and Route Clubs. The party left the Old Museum, College Square North, and took the road through Ballymena, Cullybackey, and Kilrea to Garvagh. At the latter town the party were met by S. D. Glassey, of the Route Club, who, along with the President (Joseph Skillen) acted as conductor for the day.

The next stop was at Ballintemple to visit the site of St. Adamnan's Church. The church is said to have been founded in the seventh century. Close by is the site of an extraordinary souterrain dwelling recently discovered. It is different from the usual souterrain in that it had been cut out of solid rock and appears to have been a habitation instead of a temporary shelter or hiding-place. Several chambers have been explored, and they have several resemblances to Skara Brae, the underground village recently discovered in the Orkneys, such as projections from the walls, apparently for beds. Domestic utensils have also been found, including the bottom stone of a quern; altogether this structure is an enigma to the antiquary.

The next stop was at the well-known Augustinian Priory at Dungiven, which contains the Norman-type tomb of Cooley O'Cahan. The Priory is now listed as an ancient monument and is well cared for.

Leaving this place the high mountain road was taken to Limavady, and at the summit a halt was called for lunch, close to a deep gorge known as the "Pot of Legavannon." After lunch P. G. White, of the Limavady Club, gave a talk on the geology of this chasm, showing how it was formed

from the overflow of a glacial lake situated on the top of the mountain.

The party next proceeded to Mulkeeragh to visit a megalithic monument, consisting of two burial chambers linked up by a stone circle. Here S. D. Glassey gave a talk on horned cairns and their associated structures.

After a visit to Drumcreatt, a bee-hived shaped mound, probably of prehistoric origin, the party took the road for Limavady. Tea was provided at the Technical School, presided over by the lady members of the Limavady Club, and was greatly enjoyed. W. D. Cousins apologised for the unavoidable absence of the President (M. M. MacCausland, H.M.L.), and thanks were returned on behalf of the Belfast members by their President.

A start was made for home through Dungiven and the Pass of Glenshane, and Belfast was reached in the midst of the Jubilee illuminations, a fitting close to an enjoyable day.

SALLAGH BRAES AND SCAWT HILL.

Date—Saturday, 18th May, 1935. Conductors—Miss W. J. Sayers and J. J. Hartley. Number present, 50.

The botanists first ascended Knockdhu (1,100 feet), the northern extremity of the semi-circular range of hills which constitutes the Sallagh Braes. It was disappointing to find that the Alpine plants characteristic of the basalt were very backward, probably owing to the continued drought, a circumstance which also explained the entomologists' lack of success in their search for the tarns on the summit. *Dryas octopetala* was not found in bloom, but *Arenaria verna* and *Saxifraga hypnoides* were found, the latter abundant not only on the hills but by the roadside. After tea the party climbed the south end of the Braes, passing fields covered with *Orchis mascula*, *Ophioglossum vulgatum*, *Botrychium Lunaria* and *Polystichum aculeatum* were also noted.

The archaeologists not only explored the fine seven-chambered souterrain at the foot of Knockdhu, but discovered an unrecorded stone avenue, with 22 stones in alignment, apparently leading to a cairn.

ENNISKILLEN AND LOUGH ERNE. (United Excursion.)

Date—Friday, 24th to 26th May, 1935. Conductors—Dr. R. Ll. Praeger and the President. Number present about 75.

The Belfast contingent left the Old Museum, College Square North, in charge of the President (J. Skillen), and after a pleasant drive of about three and a half hours reached Enniskillen, where the rest of the party were in waiting. It required the accommodation of three hotels owing to the numbers present. Some of the Belfast members had to proceed eight miles farther to "Lough Erne Hotel."

Next morning an early start was made to visit the islands in Lough Erne, the party embarking at the west pier in the motor boat "Enniskillen" to pick up the contingent who were staying at "Lough Erne Hotel," Killydeas.

This was reached after a sail of about three-quarters of an hour. Soon all were on board, and the bow was turned for Devenish Island, where the ecclesiastical ruins were inspected, consisting of the High church, the splendid Round Tower, said to be the largest and most handsome in Ireland, and St. Molaise's bed, the said bed being evidently the stone coffin of some long-departed ecclesiastic.

Once more on board, the boat was headed for Killydeas, where, at the Hotel, the midday meal was enjoyed on the lawns, with a glorious view of the lough and its wooded isles spread out below. Leaving here for White Island the party was joined by Lady Dorothy Lowry-Corry, who had kindly agreed to act as guide on the Island.

The boat then headed for Castle Archdale demesne, kind permission having been given by Colonel Archdale to land there and visit the gardens. Mrs. Archdale was in waiting to show the visitors around, and a pleasant hour was spent in the gardens, which included a rock garden.

Leaving here, the way over the lake was taken back to Killydeas and Enniskillen. Later, all having assembled, a meeting was held about eight o'clock in the spacious Council Chamber in the Town Hall, kindly lent by Mr. Proctor, Chairman of the Urban Council. The President of the Belfast Club having taken the chair, welcomed all present.

Afterwards Dr. Praeger gave a talk on the topography of the district. This talk was a very interesting one,

particularly about the discovery and exploration of the limestone caves in Florencecourt demesne. Some geological question having been asked and answered Dr. Praeger, along with Miss W. J. Sayers, referred to some interesting plants collected during the day.

Next day being Sunday the forenoon was free. Many members attended to their religious duties. Some visited the fine Cathedral, where Dean MacManaway courteously received those who visited it.

After luncheon the buses were mounted for Florencecourt. Arriving at the entrance to the demesne there was a delightful walk of about a mile to the Marble Arch, which is the name given to the final exit from the limestone of an underground river. Rising on the Cuileagh Mountain in its descent it reaches the soluble limestone, then runs underground through caves which it has excavated to the final exit at the Marble Arch.

The descent to the great cavern is one of extreme difficulty. Five only of the whole party, including one plucky lady, reached the great stalactite cavern with its river flowing through. Buses were then mounted for Enniskillen, then tea, packing, and departure for home, with the usual farewells.

CAVE HILL.

Date—Tuesday evening, 28th May, 1935. Conductor—J. A. S. Stendall.

Members met at the Cavehill Road bus terminus at 7 p.m., and proceeded to the Old Quarry. En route the varied plant life was examined, while the geological features were pointed out as a sequence of rocks rising from the Triassic sandstones exposed on the Antrim shore of Belfast Lough, to the volcanic basalt capping the rocks of the Cretaceous period.

NEWRY AND SLIEVE GULLION.

Date—Saturday, 8th June, 1935. Conductors—Miss W. J. Sayers and Professor J. K. Charlesworth. Number present, 29.

Plant collecting was badly hampered by heavy rain, which rendered the projected study of the water plants of the Newry Canal and river almost impossible. However, a station of *Generium phaeum* was found near Hillsborough,

and by the Newry Canal *Ranunculus Lingua*, *Mimulus Langsdorffii*, *Lycopus europaeus*, *Solanum Dulcamara* and *Valeriana sambucifolia* were seen, as well as abundance of *Oenanthe crocata* and *Oenanthe Phellandrium*. Near the canal *Lamium album* was plentiful, and in the water great masses of *Ranunculus aquatilis* in bloom and *Callitriche verna* and *hamulata* were noted. On the shore of Lough Brilán, the low level of the water revealed the great rhizomes of the yellow and white water lilies which bloomed on the surface, and at the water's edge *Ranunculus Flammula* and *Nasturtium palustre* were in flower. The Dun of Dorsey, an imposing earthen mound of quite unusual size and shape, gave rise to much speculation, and by its prominence in the landscape furnished a striking contrast to the section of the Black Pig's Dyke which was afterwards visited.

BALLYHORNAN AND BENDERG BAYS.

Date—Saturday, 15th June, 1935. Conductors—J. S. Loughridge and C. R. Nodder.

The party travelled by bus to Ballyhorman, where were seen the good exposures of "calcreted" sands and gravels, which have been cemented together by lime from percolating water. Both here and at Benderg the botanists and entomologists pursued their various interests. At Ardglass Jordan's Castle was visited.

GORTIN GLENS.

Date—Saturday, 29th June, 1935. Conductors—Rev. E. M. Gumley, J. J. Hartley and R. J. Welch. Number present over 50.

The party travelled to Omagh by G.N. Railway, and thence by bus.

Just before reaching Gortin Gap J. J. Hartley stopped the party and pointed out the main geological features of the area between it and Omagh, explaining that an enormously thick mass of ice coming from the Donegal ice centre, in melting, provided large quantities of water which had to find an outlet somehow, so, finding the easiest way was north, it gradually cut a deep gorge through the rather friable mica-schists and fell down into another big glacial lake at a much lower level, the Gortin Valley of to-day. The upper lake must have been at least 350 feet deep, six times as deep as the central area of Lough Neagh.

Once more in the motors, the party was soon at Lislap House, or Castle, as it is sometimes called, now a burnt out ruin. Here over an hour was allowed for lunch and botanising.

Shortly after leaving Lislap the party dismounted again near the View Point and walked through the Gap almost to the road to the Gortin Lakes, two of five mountain tarns on the hills high above Gortin village.

At 5.30 they moved on to Gortin for tea, served by Miss Mary MacSwiggin in the Parochial Hall by the kind permission of the rector of Gortin. A very short business meeting was held after tea—the President (J. Skillen) in the chair—when a cordial vote of thanks was passed to the rector for his courtesy.

DUBLIN.

Date—Thursday, 11th, to Saturday, 13th July, 1935.

In honour of the Jubilee of the Dublin Naturalists' Field Club a large party from Belfast travelled to Dublin by train, and the same evening there was a *Conversazione* at the Royal Irish Academy, with many interesting exhibits.

The Jubilee meeting proper of the Dublin Naturalists' Field Club was held on Friday night in the same place, Dr. R. Lloyd Praeger presiding.

Dr. Praeger, welcoming the delegates, said that for over forty years he had been himself a member of the Dublin Naturalists' Field Club, and for fifty years he had been a member of the senior club in Belfast.

The Field Club movement had originated in Belfast. They owed it to professor Haddon that the Dublin Club had been established fifty years ago. Its first president was Professor Edward Percival Wright, and since that time the Club had had a number of other distinguished men as presidents.

Joseph Skillen, President of the Belfast Naturalists' Field Club, said that they had 1,400 members in the North of Ireland. He congratulated C. Wentworth Allen, Hon. Secretary of the Dublin Club, who had organised their very pleasant excursions. The Dublin and Belfast Clubs should have more such united excursions.

W. S. Laverock, Liverpool Naturalists' Field Club; J. J. Hartley, Geological Society of London; Miss C. E.

Longfield, of the London Natural History Society; and Wm. Rennee, of the Glasgow and Andersonian Natural History and Microscopical Society, also addressed the meeting.

Earlier in the day there had been alternative excursions to Glendalough to the south and the Boyne Valley to the north.

Saturday morning was devoted to alternative short excursions, to the Zoological Gardens, the National Museum, and the Botanic Gardens at Glasnevin.

BROWNDOD.

Date—Tuesday (evening), 23rd July, 1935. Conductors—Miss M. Gaffikin and A. H. Davison.

The members taking part travelled by motor coach. The principal object of the excursion was to inspect the recently excavated horned cairn at Browndod. On the way, the rock-cut souterrain at Ballymartin was visited.

PORTMUCK (ISLANDMAGEE).

Date—Tuesday (evening), 30th July, 1935. Conductor—A. M'I. Cleland.

The motor bus left the Old Museum Building at 6.15 and went direct to Portmuck to examine the cretaceous beds exposed there at low tide. The return journey was made by Brown's Bay and the lower road, passing the Druid's Altar.

KNOCKNADONA AND DROMORE.

Date—Saturday, 3rd August, 1935. Conductor—A. M'I. Cleland.

The excursion party left the Old Museum at 2 p.m., and had for its chief objects the inspection of the chalk quarry at Knocknadona, the Brookmount gravel pit, and then the rhyolite quarry at Islandderry. Return was made by Dromore.

RIVER LAGAN.

Date—Tuesday (evening), 13th August, 1935. Conductors—Miss E. E. Barry and J. A. S. Stendall.

A bus conveyed the party to Drum Bridge, whence a walk along the towpath brought them to Shaw's Bridge, a walk providing good hunting ground for both botanists and zoologists.

KILKEEL.

Date—Saturday, 24th August, 1935. Conductors—A. H. Davison and J. A. S. Stendall.

Members left the Old Museum in two buses, and in glorious weather. This excursion was over the only road which crosses the Mourne range, and at the Deer's Meadow, a flat tableland in the heart of the Mourne, a talk was given by A. H. Davison on the geology of the mountain range. A halt was also made where a stone with labyrinthine markings was recently found, and here J. A. S. Stendall explained how it was discovered and removed for safe custody to the Belfast Municipal Museum. Tea at Kilkeel and a visit to the sea for marine zoology ended an interesting and instructive excursion, Belfast being reached by way of Clough and Ballynahinch.

ROSAPENNA.

Date—Saturday, 7th September, 1935. Conductors—The President and R. J. Welch.

The party left Belfast by the 8.15 a.m. train for Strabane, whence motor coaches covered the 40 miles to the Rosguil Peninsula Rest House, the route lying through Ramelton and Milford to the winding Mulroy Fiord, where fine vistas of Fanad were seen through the Cratlagh Woods. Passing through Carrigart, a stop of 10 minutes was made to let the party see a fine exhibit of Donegal tweeds, an open air exhibit in the main street of the little town.

On arrival at the Rest House the various sections of the party scattered for a three and a half hours' collecting before tea at 4.15.

Some went to see all that remains of Lord Boyne's house and garden, overwhelmed by drifting sand, the light foraminiferous sand of the Tramore dunes which gives to-day such fine golfing turf.

Others of the party visited the contorted quartzite cliffs of very ancient rocks, or hunted for primitive man's food shells and stone implements in the famous "kitchen-middens" on the golf links near the hotel. The route home was *via* Barnsbeg, Kilmacrenan and Letterkenny. Belfast was reached at 10 o'clock.

MASSEREENE PARK.

Date—5th September, 1935. Conductor—A. E. Muskett.

The Fungus Foray, which has been a feature of the summer programme for some years, was held in Massereene Park. The collections made were not very extensive owing to destruction of timber in the demesne, but some interesting varieties were secured.

ANNUAL CONFERENCE AT DERRY.

Almost 200 members attended the annual Northern Conference of Naturalists' Field Clubs which opened in Derry on Friday, 27th September, 1935, the Belfast, Route, Limavady, Tyrone and Omagh Clubs being represented. There were also visitors from the Dublin Naturalists' Field Club.

The Melville Hotel was the Conference headquarters, and J. Skillen, President of the Belfast Club, presided. A warm welcome was given to the Conference by A. J. Irwin, President of the Derry Club, which was acknowledged by Mr. Skillen.

Miss E. M. O'Neill, B.A., of Derry Club, opened the scientific proceedings with a lecture on the Peninsula of Inishowen and its many fine archaeological and antiquarian remains. The lecture was illustrated by a series of lantern slides by Hugh Weir. Following the address many exhibits of stone implements, geological specimens, coins, medals, etc., were inspected.

On Saturday the party made a tour of the Peninsula, taking the east coast route through Moville, the first stopping place being at the ruins of the military fortress, Greencastle.

Afterwards the Carrowmore Crosses were visited at the Monastery of Both-Chonais, also a bullaun stone and some souterrains or ancient Irish underground dwellings. A short talk on the history of the crosses and the monastery was given by Miss O'Neill.

The next visit was to the old church of Cloncha, where Harry P. Swan described its history and the grave slab on which is sculptured a cross surrounded by a caman, ball, and floriated ornament. At Bocan Parochial Hall the party was welcomed by Rev. Father M'Kenna, P.P., and shown the ancient Celtic bronze bell of St. Boden. The history of the bell was related by Father M'Kenna, Mr. Swan and Rev. Canon Duncan, of Lifford.

After being entertained by the ladies of the Derry Club the party visited a very fine stone monument, which may be the chamber of a horned cairn, and is known as the Temple of Doon. It was described by Messrs. Glassey and Swan. Next they visited Carndonagh Crosses, described by Canon Duncan, and the famous calcreted shelly-sands of Pollan Bay dunes, near Ballyliffin.

The members then motored to Buncrana, where they were entertained at tea by Mr. and Mrs. H. P. Swan, and, before leaving, inspected Mr. Swan's fine collection of Irish and other antiquities.

At the Conference in the evening Coleraine was unanimously selected for the 1936 meeting, and Cushendall as headquarters for the May excursion.

Dr. R. Ll. Praeger and Miss Sayers named any interesting plants found, while the former gave a talk on the plants of the Peninsula and their geological history. Sam Henry, of the Route Club, and others also spoke on the area visited, while Dr. J. Wilfrid Jackson, of Manchester Museum, gave a short lecture on his diggings at the Ballintoy Caves, and exhibited a number of the objects of interest found.

There was no official programme on Sunday, but several of the party climbed the steep isolated hill on which stands Ireland's finest cashel, a dry-built circular stone fort, the famous Grianan of Aileach, now a Free State national monument.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session opened with the Annual Conversazione held on 15th October, 1935, in the Assembly Buildings. Tea was served from 6.30 to 7.45 p.m.

The attendance was equal to that of previous years and the exhibits both numerous and interesting. At the business meeting the President welcomed the members and their friends, and expressed his appreciation of the high standard of the exhibits. Twenty-one Senior Members and five Junior were elected. Thomas Greer (Hon. Secretary Tyrone Club) was made an Honorary Member, and J. A. Benington,

Friends' School, Lisburn, a Corresponding Member. The prizes won by Junior Members were distributed by the President, Joseph Skillen.

The exhibits included:—

BOTANY.—Archibald Graham, uncommon Fruits; Miss Eleanor Barry and Miss Kathleen Bourke, Water Plants; Miss F. M. J. Adams, some microscopic preparations showing different types of plant crystals; Miss W. J. Sayers, studies in colour of wild flowers found in Norway and pressed specimens of the same; Rev. W. R. Megaw, Fruiting Mosses; C. R. Nodder, Botany Note-books; C. S. Bailey, Fruits and Seeds; Municipal Museum and Art Gallery, cases illustrating the life history of the fern; Miss M. W. Rea, Geaster (fungus) from Norwich.

GEOLOGY.—Queen's University (Department of Geology), maps and models illustrating the corries of Co. Kerry; map showing the distribution of the Tertiary Dykes in N.E. Ireland; plant remains from interbasaltic beds of Portrush; A. H. Davison and R. G. Henderson, rocks, diagrams and maps illustrative of the Rosapenna and Derry Conference Excursions; A. M'I. Cleland, silicified chalk from North Downs, Kent; de-silicified flints from North Downs, Kent; samples of Ludlow "bone bed" from Craven Arms, Shropshire; Lower Cambrian trilobites from Comley, Shropshire; Silurian trilobites from Winstanstown, Shropshire; Geological Photographs; indian corn grown in Knock, Belfast; R. J. Welch, Holocene fossil land shells from Rosapenna sand-dunes.

ZOOLOGY.—R. MacDonald, *Halotis* sp. California; edible Irish land Mollusca; C. D. Deane, photographs of Ulster bird-life; some ground-nesting birds in their natural habitat; Regurgitation (pellets of birds); R. J. Welch, Holocene shells from the Lough Foyle shell-banks; land shells, Rosapenna area; living *Planorbis corneus* from River Lagan and Mountstewart; lantern slides, geology, ethnography, archaeology, Rosapenna area; J. A. S. Stendall, sectional mollusks; some unusual birds' eggs; W. M. Crawford, water-beetles; Indian butterflies; Goliath Beetle from Central Africa; Miss M. W. Rea, Mycetozoa.

ARCHAEOLOGY AND ANTHROPOLOGY.—Municipal Museum and Art Gallery, scale model of Goward Horned Cairn; R. D. Caldwell, small bronze socketed axe; iron axe; clay pipe of curious shape; A. Watson Lindsay, Ogham stone cast, Dunalis souterrain, Coleraine; stone with remains of Early

Iron Age iron drill broken in it; pottery flints and bones found in Dunalis souterrain; plan and sections of Dunalis souterrain, in detail, drawn to scale and coloured; photos of interior Dunalis souterrain, also photos of stone outcrops bearing distinct iron drill marks, believed first of kind discovered; W. A. Green, rushlight candlesticks and crusie lamps, Irish and Italian; Angus MacDonald, stone implements from sandhill sites; G. Kelly, lock of Ferryquay Gate, Londonderry, at the time of the siege (lent by Mrs. Kennedy-Skipton, Saintfield).

PHOTOGRAPHY.—R. J. Welch, contorted cliffs and caves, Rosapenna; A. R. Hogg, Mountstewart gardens by night, a 40in. by 30in. print; John B. Pears, series of full plate photographs, with notes on objects and places shown; Miss May L. Dunlop, photographs of places of historic and scenic interest visited at various times by B.N.F.C.; J. S. Loughridge, natural history photographs in colour.

MISCELLANEOUS.—Miss M. Gaffikin, map of the antiquities of Mayobridge district; C. D. Chase, nature study map of Campbell College; W. Erskine Mayne, display of scientific books relating to the activities of the Club.

JUNIOR DIVISION EXHIBITS (Collected during this year).—Mourne Mountains pottery, Hon. Secretary Junior Division; Some Belfast butterflies, George Burns; Sketches of birds, C. D. Nodder; land, marine and freshwater shells, antiquarian photographs, etc., Noel Gregg; British and West African butterflies and moths; mimicry, crysalids, lava from Teneriffe, Vivian Gotto; grasses, wild flowers, seaweeds, geological specimens, Dorothy and Edna Wilson; local wild flowers, illustrated report on Giant's Ring, freshwater mollusks, etc., autumn fruits, Felicity Bolton; shells, Jean M'Veigh; rock salt to table salt, G. B. Duffin; marine, land and freshwater shells, Viola Benson; British trees, leaves, flowers and fruits, Iris Benson.

Friends' School, Lisburn, Natural History Society, Hon. Secretary, J. A. Benington, B.Sc.—Cliff-nesting sea birds with nests and eggs in natural surroundings; N.H.S. photographic album; bird migration map, Joan Walker, Bebe Simpson, Pat Baillie, Joan Tyler, Helene Henning; nesting box, R. Henning, R. Bell; bird table and shelter, B. Hobson, H. Monteith; nature diaries, Barbara M'Cleery, Joy Lamb, Pauline Mayes, Nellie M'Cullough, Moira Douglas, Angela FitzSimons, Hazel Poole, Doreen Houston, W. Sinton, T. Snoddy, B. Hewitt, H. Green, F. Williamson, H. M'Cullough, R. Ward,

SOME REMINISCENCES.

At the opening meeting of the Lecture Season held in the Old Museum on Tuesday, 5th November, 1935, the President, J. Skillen, gave his inaugural address on the above subject.

Mr. Skillen dealt with the existing belief in fairies, the belief that cattle affected with murrain were "elf-shot" and the prevailing reluctance of the peasantry to interfere with raths or fairy-thorns. He referred also to the Loch Ness myth, the barnacle-geese fable, the belief in the spontaneous generation of eels, touching for the King's Evil, charms, the philosopher's stone and other superstitions.

ROMANCE OF FLOWERS.

On Friday, 22nd November, 1935, at the Old Museum, at 8 p.m., D. J. Carpenter, A.R.C.Sc.L., delivered a lecture on the above subject.

[No Abstract.]

A GEOLOGICAL TOUR OF GREAT BRITAIN.

(Part I).

At the Old Museum on Tuesday, 17th December, 1935, at 8 p.m., A. M'I. Cleland delivered a lecture on the above subject.

[No Abstract.]

ZOOLOGICAL SECTION EVENING.

On Tuesday, 4th February, 1936, at the Old Museum three short papers were read as follows:—

1. Ecology of Animals—J. S. Loughridge, F.R.C.S.
2. Pearls—R. MacDonald.
3. Bees and Wasps—J. A. S. Stendall.

[No Abstracts.]

ARCHAEOLOGICAL SECTION EVENING.

PREHISTORIC ARCHAEOLOGY OF TYRONE.

A lecture on "The Prehistoric Archaeology of Tyrone," with special reference to Dun Ruadh, a prehistoric cairn at Stewartstown, was given on Tuesday, 18th February, 1936,

at 8 p.m., in the Old Museum, College Square North, by Oliver Davies, M.A., Lecturer in Archaeology, Queen's University.

The President (J. Skillen) was in the chair.

Mr. Davies said the present paper intended to deal entirely with the neolithic and bronze periods down to about 1000 B.C. Scientific excavation had hardly been carried out yet in the county, but the results obtained at Clady Halliday and Dun Ruadh last summer were encouraging for further work.

In the second millennium B.C. the county probably contained few, if any, bogs. The higher slopes would have been good pasture, the mountain tops probably too rocky or cold for permanent habitation, while the lower valleys would have been forested. As neolithic remains were not very common in East Derry early man probably approached from the south-east through Monaghan. Influences might also have reached Tyrone from the west via Sligo or Donegal, and in general there seemed to have been an influx of population, by whatever route it came, from France or farther south.

The early remains in Tyrone might at present be divided into four classes—the horned cairns, of which Clady Halliday was excavated last spring, had been examined also in County Antrim and Down, and the early examples in Tyrone seemed to conform to the general type; the long cairns with passages and single chamber were connected with remains in the Free State, and ultimately probably with Spain; the smaller cists were perhaps degenerate forms of the two previous types; and there were many stone circles. To the last class Dun Ruadh, excavated last autumn, seemed to belong, but at a later date a cairn had been built over it to enclose a number of burial cists. It was unfortunate that this monument, which was one of the finest in Ulster, had been dreadfully wrecked during the last thirty years. But it had yielded many pots and flints, and it was hoped that the further excavations this year would solve the outstanding problems, and that it would be possible to leave the "Royal Fort" in a condition in which its grandeur and history could be better appreciated than heretofore.

A hearty vote of thanks to Mr. Davies was passed on the motion of R. S. Lepper.

THE RELATIONS OF GEOLOGY TO FIELD BOTANY.

A meeting was held in the Old Museum on Tuesday, 24th March, 1936, when a lecture was given by Dr. R. Lloyd Praeger on the above subject. The President (J. Skillen) was in the chair.

The distribution of plants on a world-wide scale is governed chiefly by questions of temperature and rainfall; but within smaller areas, such as Ireland, topography and soil are the dominating factors, and climate takes a subordinate place. Thus, in analysing the flora of Europe as a whole, we find an increasing change towards the west due to the increasing influence of the great body of comparatively warm water which forms the Atlantic, and the Irish flora shows that Ireland is in the very focus of this Atlantic influence; but within the country the distribution of mountain masses, and especially the presence or absence of limestone, has a greater effect in extending or curtailing the range of the components of the flora. In Ireland the distribution of non-calcareous and calcareous rocks and that of elevation and low areas show a general coincidence; the result of this is to combine the effects due to the one phenomenon or to the other; the great Central Plain is essentially a limestone area, while most of the mountain-groups rise around its margin and are formed of non-calcareous rocks. A combination of limestone and mountain is a happy combination for the botanist, since the limestone flora is rich and since the rough ground of mountainous areas is favourable for the survival of a large flora which on the low grounds might have suffered through agriculture, etc. Such a combination is rare in Ireland, but where it occurs, as in Sligo and Clare, it provides a happy hunting ground, with a large flora and many rare plants. The mountain areas formed of granite or slate or sandstone have usually a much poorer flora. Especially on granite, thick beds of peat have formed, and these yield a flora usually restricted and monotonous. Slate rocks are better, but they do not equal the limestone. The Glacial Period has left behind it among other detritus much sand and gravel; especially where this is limy, it forms the home of many light-soil plants. The presence of the sinuous esker-ridges over the Central Plain has resulted in wide dispersal of these floral elements all over an area which without them might not have been present at all, owing to the widespread stretches of bog and marsh, and of soils derived from Glacial clay, which occur throughout the Central Plain area.

A GEOLOGICAL TOUR OF GREAT BRITAIN.

(Part 2.)

At the Old Museum on Tuesday, 31st March, 1936, A. M'I. Cleland delivered a lecture on above subject.

[No Abstract.]

LECTURE DEMONSTRATIONS ON GEOLOGY.

During the winter a series of nine lecture-demonstrations on geology were given by Professor J. K. Charlesworth, D.Sc., Ph.D., in Queen's University, by kind permission of the Vice-Chancellor. The lectures were attended by more than fifty members of the Club and proved very interesting and instructive.

ANNUAL MEETING.

The Annual Meeting was held in the Museum, College Square North, on Tuesday, 7th April, 1936, at 8 p.m., the President (J. Skillen) in the chair. The following reports were presented:—

ANNUAL REPORT.

Your Committee has great pleasure in presenting the Report for the Seventy-third year, and in doing so desires to congratulate the members on the continued prosperity and popularity of the Club.

The membership on the 1st April this year stands at 502, and with 125 Juniors makes a Total of 627.

There were 47 new members elected during the year, and offset against this a loss through death, resignation, or lapsed members of 40, being a net increase of 7.

The programme of the Summer Excursions was duly carried out, and consisted of sixteen excursions, the details of which have been given in earlier pages.

For kindness received during the summer meetings, including the Conference, we desire to place on record our indebtedness to the Londonderry Club, to the Rev. Father M'Kenna, P.P., at Bocan, Co. Donegal, for the use of his lecture hall and for his talk on the ancient ecclesiastical bell, to Mr. and Mrs. H. P. Swan for hospitality at Buerana, to

Colonel Archdale, Lord Enniskillen, and Lord Massereene for permission to visit their estates, and to Lady Dorothy Lowry Corry for acting as guide and lecturer at White Island.

The Winter Session opened with the usual conversazione in the Assembly Buildings, the attendance being up to the average, and the exhibits numerous and educational. The Junior Division as usual had an outstanding display both varied and instructive. The team work exhibit of the Friends' School, Lisburn, deserves special mention.

We desire to return our best thanks to the donors of the prizes, who were as follows:—The President, the Vice-President, Miss Sayers, W. M. Crawford, A. M'I. Cleland, A. Albert Campbell, R. G. Henderson, J. A. S. Stendall, W. G. R. Skillen.

The winter lecture session was carried through successfully according to the details given in earlier pages.

These lectures were well attended, and interesting discussions followed each.

During the winter a course of nine lecture-demonstrations was given in the Department of Geology, Queen's University, by Prof. Charlesworth. The lectures were of high educational value and were much appreciated.

We desire to record our best thanks to Prof. Charlesworth for the trouble taken and time spent in delivering them, and to the Vice-Chancellor for granting the use of the rooms.

Our five affiliated Clubs are carrying on their activities in their various districts, and several of our members helped them by delivering lectures during the past winter. The Committee desire to thank the following members who did so:—

The President, D. J. Carpenter, J. A. S. Stendall, Prof. Gregg Wilson, J. J. Hartley, Dr. R. H. Hunter, Dr. R. Ll. Praeger.

In conclusion, we regret to record the deaths of several of our members, whose names are appended. We desire to thank the Press for reporting our meetings and the various learned societies who supplied us with their publications during the past year.

W. G. R. SKILLEN	}	Hon.
WM. SWEENEY		Secretaries.

OBITUARY.

W. J. Dunwoody.

Rev. Canon Foster, B.D. (Corresponding Member).

A. N. Sharpe.

HON. LIBRARIAN'S REPORT.

The work goes on steadily. One addition has been made to the list of Exchanges, viz., the Coventry N.H. and Scientific Society. The work of completing sets of *Proceedings* in the Museum Library, where the Club's Library is housed, is continuing apace, as well as the binding of completed volumes.

The list of Exchanges is appended at page 349.

W. M. CRAWFORD.

REPORT OF HON. RECORDING SECRETARY.

The vegetation of 1935 was early, following a mild winter. Bird visitors came well up to time, though strangely enough, there was no exceptionally early arrival as might have been expected.

Records made during the year have not been many, but they are of much interest and illustrate that good work in the sphere of natural history continues, though it is regrettable that more members do not show activity in the field.

ZOOLOGY.

For Birds, Fishes, Lepidoptera, Coleoptera and Mollusca see special pages of "Records" at page 353.

BOTANY.

Thomas Greer records Musk Mimulus, *Mimulus moschatus* (Douglas), in abundance in Gortin Glen, Ty., on 14th August, 1935.

Carex divulsa Stokes, is reported from Greenisland, An., by Miss Nora Fisher.

Miss W. J. Sayers reports the Bee Orchid, *Ophrys apifera* L. at Downhill, Ld., a new county record.

Rev. W. R. Megaw has recorded the moss *Thuidium hystricosum* Mitt., from the sandhills at Magilligan, Ld., as new to Ireland, and has made several new vice-county finds.

Archaeology Investigation is making much headway, and during the year Dr. J. Wilfred Jackson continued his excavation of the caves at Ballintoy; Professor V. Gordon Child, of Edinburgh University, concluded a valuable piece of work on a promontory fort at Larriban; while several horned cairns have been investigated by members of the Northern Ireland Prehistoric Council. Reports of all have appeared or will appear in appropriate publications.

J. A. SIDNEY STENDALL, *Hon. Secretary.*

REPORT OF BOTANICAL SECTION.

There were two excursions during the summer; and a Botanical evening on March 24th, 1936, when Dr. Praeger gave a most interesting lecture on "The Relations of Geology to Field Botany."

On May 21st, 1935, a joint excursion with the Geological Section was held to Crow Glen. Plants noted included Water Avens (*Geum rivale*), Goldilocks (*Ranunculus auricomus*), Sweet Woodruff (*Asperula odorata*), Guelder Rose (*Viburnum Opulus*). On August 17th, members went to Tullycairn, near Dromore. Here, Bur-Marigold (*Bidens cernua* var. *radiata*), Celery-leaved Buttercup (*Ranunculus sceleratus*) and Spindle Tree (*Eunonymus Europæus*) were noted. On March 31st, 1936, an informal meeting was held to consider ways and means of getting information for the new edition of the Flora. Miss Sayers distributed lists of plants and their localities in Counties Down and Antrim that require to be verified, if possible.

KATHLEEN M. BOURKE, *Hon. Secretary*

REPORT OF ZOOLOGICAL SECTION.

The section held three excursions during the past season, one being a joint excursion with the Geological section.

On 11th May the excursion to Orlock was a joint one with the Geological section. The Zoologists found much to interest them.

The second excursion was held on 1st June to Strangford. At Ringhaddy motor boats were kindly placed at the disposal of the party by Drs. Unsworth and Graham, but owing to the state of the tide we were only able to visit Dunnyneil Island. Numerous species of seabirds' nests were seen and examined, also several species of marine mollusca were collected, one being of some interest from the point of view of distribution, namely *Leucopeplea* (Montagu).

The third excursion of the season was held to the mouth of the Sixmilewater at Antrim on 20th July. This was a dredging excursion, and although the results obtained were not great as regards species they were very interesting, the following species being very abundant:—*Gammarus mulex* L, *Arellus aquaticus* L, *Sphalrium lacustor* (Müller), while *Hydrobia jenkinsi* Smith though common was much rarer than usual.

Although the attendance at the above excursions was never very large those who did attend were very enthusiastic.

During the year individual members have been very active in their own particular groups. Details of entomological and molluscan reports will be found at page 353.

The section does not seem to possess the attraction for members which it deserves, but we think that if members of the Club would realise that there yet remains much valuable work to be done in natural history by people who are not specialists, we can look forward to a time when there will be a keener interest taken in this section of Club work.

J. S. LOUGHRIDGE,	}	Hon.
JAMES ORR,		Secretaries.

REPORT OF GEOLOGICAL SECTION.

General Geological excursions were made as follows:—

Scawt Hill (18th May), to examine the metamorphosed chalk so well exposed in that locality.

Gortin Glen (29th June), to inspect the glacial overflow channels and sections to be seen there.

Port Muck, Island Magee (30th July), to examine the exposure of Liassic beds so well seen at low water.

Lastly (on Saturday, 3rd August), a very comprehensive excursion was made to Knocknadona chalk quarries; Brookmount glacial gravel pits; and Islandderry rhyolite quarry.

Sectional excursions were made as follows:—

Orlock Point (11th May), to examine the Raised Beach deposits and Ordovician slates.

Crow Glen (21st May), to inspect the Trias Cretaceous succession so well seen there.

Scrabo Quarries (14th June), to examine the Trias sandstones and shales.

The Sectional Excursion arranged for Saturday, 19th September, to visit Waterloo, Larne, had to be postponed owing to unforeseen circumstances.

From the above report it will be seen that the Section was very active during the past summer session.

This activity and interest was further emphasised in the magnificent series of lectures given to the Club as a whole by Prof. J. K. Charlsworth in the Geological Department, Queen's University, during the following Winter Session, for particulars of which see the Annual Report.

A. M'I. CLELAND,	} <i>Hon.</i>	
J. J. HARTLEY,		
		<i>Secretaries.</i>

REPORT OF THE ARCHAEOLOGICAL SECTION.

The Section held three field meetings during the summer session—to the district between Ballyclare and Ballymena on 22nd June; to Legananny and Slieve Croob on 10th August; and to Cranfield, Co. Antrim, on 14th September. On 12th October a visit was paid to the Gallery of Irish Antiquities in the Municipal Museum, under the guidance of Mr. Alfred George, of the Museum staff, followed by a social hour of tea and talk in the Carlton.

The Section was responsible for the programme on the Archaeological Night during the winter session on 18th February. The Section continues to exhibit healthy growth.

A. ALBERT CAMPBELL, *Hon. Secretary.*

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

The Survey of Antiquities in Northern Ireland continues slowly but steadily.

According to a decision made last year, work during the past season has been concentrated on megalithic monuments, 75 of which have been inspected and mapped.

In Counties Antrim and Down this work has been carried out in connection with the proposed publication of a Book on Antiquities by the Ancient Monuments Advisory Committee.

It is satisfactory to know that the maps showing the distribution of Antiquities produced by the Survey Committee and published in the *Irish Naturalists' Journal* have been made use of by both the staff and students of Queen's University. Copies of Mr. Evan's paper and the maps were sent to various scientific societies and pre-historians, and letters were received in reply commending the work being carried out by the Club.

The thanks of the Committee are due to Mr. Rippingham for his kindness in re-drawing the distribution maps for publication; to Dr. Chart and the staff of the Public Record Office, and the Curator and the staff of the Belfast Municipal Museum for affording every facility for research work; to Mr. Estyn Evans and Mr. Oliver Davies for inspection of megalithic monuments. The magnificent contributions to the Survey made by Lady Dorothy Lowry-Corry and Mr. S. D. Glassy deserve especial mention, their reports, plans, etc., forming the bulk of the past season's work.

Details of reports, plans, photographs, etc., are given below:—

Received during 1935-36. The figures in brackets show the totals to date from the beginning of the work.

	Reports.	Plans.	Photographs.
Megalithic Monuments ...	160 (278)	63 (135)	17 (187)
Souterrains ...	16 (34)	0 (7)	0 (2)
Forts, Cashels, Mottes ...	41 (107)	5 (23)	0 (19)
Crannogs ...	0 (37)	0 (0)	0 (3)
Churches ...	0 (11)	0 (0)	5 (75)
Castles ...	0 (5)	0 (0)	1 (87)
Other Antiquities ...	9 (25)	0 (3)	4 (82)
	<hr/> 226 (497)	<hr/> 68 (168)	<hr/> 27 (455)

MARY GAFFIKIN.

JUNIOR DIVISION REPORT.

The number of Junior Members on the list is 125. During the year 18 new members were elected, 4 resigned, and 2 were transferred to the Senior List.

The Junior Division Committee met three times. On each occasion we were indebted to our Chairman for the use of his office.

The usual annual reminder of subscriptions due was not sent out until 6th April. In consequence I can report the receipt of only twenty-three subscriptions, although I know a large number of junior members will pay on being reminded.

The following excursions and meetings were held:—

May 25—Geological excursion to Colin Glen. Conductor, J. J. Hartley.

May 28—General Club excursion to Cave Hill. Conducted by J. A. S. Stendall.

June 1—Balmoral Show Talks arranged by Mr. Rhinehart in Ministry of Agriculture's Exhibition.

June 22—Excursion to Portstewart. Conducted by Capt. Chase and Messrs. R. and A. Macdonald.

October 12—Lagan and near fields. Conductors, Miss Rea and Mr. N. Carrothers.

1936.

January 8—By courtesy of York Street Flax Spinning Co. a party of 17 Junior members were shown all the processes.

February 22—Excursion to Skegoniel Brickworks and Cave-hill quarries. Conducted by A. H. Davison. All members got good specimens of different kinds of gypsum, casts of salt crystals and fossils from the chloritic chalk.

February 25—Second Junior conversazione in Old Museum. Number present, including seniors, was fifty-five. Tea was provided by the kindness of Miss Rea, M.Sc., who was, however, unable to be with us to our great regret.

Most Junior members brought exhibits. Mr. Benington, of the Friend's School, Lisburn, gave a short explanation of his bird migration map.

Mr. Hartley gave a talk on fossils. One of the previous Saturday's finds was recognised as a rare one.

Mr. Hartley said that there was no specimen of this fossil at the University, and he accepted it as a gift from the girl who found it, to be added to collection there.

March 31—Six junior botanists were summoned to the special meeting of the Senior Botanical Section to consider ways of verifying facts for the new edition of the Flora. Five of them came and expressed their willingness to help in the searches.

WINIFRED NODDER, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1935. No award.

LIST OF EXCHANGING SOCIETIES.

1934-35. 1935-36.

—	—	Barrow-in-Furness—Naturalists' F.C. and Lit. and Sc. Association.
1	1	Belfast—Committee of Public Museums and Art Gallery.
1	1	Committee of Public Libraries.
1	1	N.H. and Phil. Society.
—	—	Presbyterian Historical Society of Ireland.
1	—	Berlin—Zoologisches Museum der Universität.
1	1	Birmingham—N.H. and Phil. Society.
1	1	Bournemouth—Natural Science Society.
1	1	Brighton and Hove—N.H. and Phil. Society.
1	—	Bristol—Naturalists' Society.
1	1	Brussels—Musée Royal d'Hist. Nat.
—	—	Buteshire—N.H. Society.
—	1	Caradoc and Severn Valley—Field Club.
1	1	Cardiff—Naturalists' Society.
—	1	Carlisle—Natural History Society.
—	—	Chester—Society of Nat. Sc., Lit. and Art.
—	1	Coventry—N.H. and Sc. Soc.
1	1	Down and Connor—Historical Society.
1	1	Dublin—N.F.C.
1	1	Royal Irish Academy.
1	1	Royal Society of Antiquaries, Ireland.
1	—	Royal Zoological Society of Ireland.
—	—	Dumfriesshire and Galloway—Natural History and Antiquarian Society.
1	1	Dundalk—County Louth Archaeological Journal.
—	1	Eastbourne—N.H., Photographic and Lit. Society.
—	1	Edinburgh—Geological Society.
1	1	Essex—Field Club.

1934-35. 1935-36.

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| 1 | 1 | Eton College—Natural History Society. |
| 1 | 1 | Frankfort—Senckenbergische Bibliothek. |
| — | — | Glasgow—Royal Philosophical Society. |
| 1 | 1 | Glasgow and Andersonian Natural History and
Microscopical Society. |
| 1 | 1 | Guernsey—La Société Guernésiaise. |
| — | 1 | Halifax, Nova Scotia—Institute of Science. |
| 1 | — | Hertfordshire—N.H. Society and F.C. |
| 1 | — | Isle of Man—N.H. and Antiquarian Society. |
| 1 | — | Isle of Wight—Natural History Society. |
| 1 | 1 | Leeds—Philosophical and Literary Society. |
| 1 | 1 | Leicester—Lit. and Phil. Society. |
| — | — | Leyden—Rijks Ethnographisch Museum. |
| 1 | — | Liverpool—Geological Society. |
| 1 | — | Naturalists' Field Club. |
| 1 | — | Llandudno, Colwyn Bay and District — Field
Club. |
| 1 | 1 | London—British Association. |
| 1 | — | British Museum. |
| 1 | 1 | Geologists' Association. |
| 1 | 1 | Linnean Society. |
| 1 | 1 | Natural History Society. |
| — | — | Manchester—Geological Association. |
| 1 | 1 | Lit. and Phil. Society. |
| — | — | Microscopical Society. |
| 1 | 1 | Marlborough College—Natural History Society. |
| 1 | 1 | Mexico—Instituto de Biología. |
| — | 1 | Montevideo, Uruguay—Museo de Hist. Nat. |
| — | — | Newcastle-upon-Tyne—Natural History Society
of Northumberland, Durham and
Newcastle-upon-Tyne. |
| 1 | — | Northern Naturalists' Union. |
| 1 | — | Northern Naturalists' Union. |
| — | 1 | University of Durham. |
| 1 | 1 | Norfolk and Norwich—Naturalists' Society. |
| 1 | 1 | North Staffordshire—Field Club. |

1934-35. 1935-36.

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|---|---|--|
| 1 | 1 | Northern Naturalists' Union. |
| — | 1 | Oxford—Ashmolean Natural History Society. |
| — | 1 | Perthshire—Society of Natural Science. |
| — | — | Plymouth Institution and Devon and Corn.
wall N.H. Soc. |
| 1 | 1 | Stavanger—Staats Museum. |
| 1 | 1 | Swansea—Scientific and Field Naturalists'
Society. |
| 1 | 1 | Toronto—Royal Canadian Institute. |
| 1 | 1 | Torquay—Natural History Society. |
| — | 1 | Wellington, N.Z.—Royal Society of N.Z. |

U.S.A.

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|---|---|---|
| 1 | — | Boston, Mass.—Society of Natural History. |
| 1 | 1 | Chicago—Academy of Sciences. |
| 1 | 1 | Field Museum of Natural History. |
| — | — | John Crerar Library. |
| 1 | 1 | Cincinnati—Lloyd Library. |
| — | 1 | Madison, Wis.—Wisconsin Academy of
Sciences, Arts and Letters. |
| 1 | 1 | Milwaukee, Wis.—Public Museum. |
| — | 1 | New York, N.Y.—Academy of Science. |
| 1 | 1 | Philadelphia—Academy of Natural Sciences. |
| — | — | Portland, Maine—Society of Nat. History. |
| — | — | Rochester, N.Y.—Academy of Science. |
| 1 | — | St. Louis, Mo.—Academy of Sciences. |
| 1 | 1 | Missouri Botanical Garden. |
| 1 | 1 | San Diego, Cal.—Society of Natural History. |
| — | 1 | San Francisco, Cal.—California Academy of
Sciences. |
| 1 | — | Staten Island, N.Y.—Institute of Arts and
Sciences. |
| — | — | Tufts College, Mass.—Eaton Memorial
Library. |
| 1 | 1 | Washington—U.S. Geological Survey. |
| 1 | 1 | Government Printing Works. |
| 1 | 1 | National Museum. |
| 1 | 1 | Smithsonian Institution. |

Receipts and Payments Account for Year ended 31st March, 1936.

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RECEIPTS.		PAYMENTS.	
Balance on hands at 31st March, 1935	...	Printing and Stationery	...
Subscriptions received during year :—	...	Postages	...
436 at 6/-	£130 16 0	Incidental Expenses, Bank Charges,	£55 1 7
20 at 3/- (half-year)	3 0 0	Clerical Assistance, etc.	41 6 6
			7 7 6
Arrears of previous years, 25 at 6/-	£133 16 0	Hire of Lecture Hall and Committee Room	...
Paid in advance for 1936/7 et seq.	7 10 0	Lanternist's Fees	...
13 at 6/-	3 18 0	Lecturer's Travelling Expenses	13 17 6
		Conversazione Account (without charging Printing and Postages)	8 0 0
Entrance Fees, 47 at 5/-	...	<i>Irish Naturalists' Journal</i> :—	2 0 0
Excursions Account (without charging Printing and Postages)	...	Affiliation Fee	...
Prof. J. K. Charlesworth's Lectures (without charging Printing and Postages)	...	Cost of 100 prints of Antiquities Survey Article, by Mr. E. E. Evans and Miss M. Gaffkin	3 0 0
Club Badges sold, 7 at 2/-	...	...	6 0 0
Special Donation, Mrs. E. H. Peacock	...	Cost of publication of Proceedings for 1932/33 and 1933/4	9 0 0
Junior Division Subscriptions—not yet received	...	Amount placed on Bank Deposit in name of the Club and earmarked as a grant towards publication of new edition of Flora of N.E. Ireland	54 17 0
		Junior Division Expenses :— Certificates, Typing Circulars, writing printing Winter Programmes, Postages, etc.	25 0 0
		Hire of Hall for Junior Conversazione	6 16 6
		...	1 7 6
			8 4 0
		Balance with Northern Bank, Limited on current account, at 31st March, 1936	231 5 7
		...	47 11 0
			£278 16 7

R. G. HENDERSON, Hon. Treasurer.
3rd April, 1936.

Audited and found correct.

A. ALBERT CAMPBELL.
CHARLES R. NODDER.

RECORDS.

In the following pages will be found interesting records of facts reported by a number of contributors. It has been considered advisable to bring such items together, rather than have them scattered over the whole Proceedings in accounts of excursions or sectional reports:—

In the lists following, the ordinary abbreviations of County names have been used, viz., An. for Antrim, Do. for Down, Ld. for Londonderry, Ar. for Armagh, Fe. for Fermanagh, Ty. for Tyrone.

ZOOLOGY.

BIRDS.

A female Corncrake, **Crex crex** (L.), was obtained by W. G. Burns, having been caught on 7th January, 1935, by a dog close to the Lagan towpath, near Belfast. The bird had an old break on its left wing. It is now in the Municipal Museum Collection.

Mr. J. L. Turten examined another bird of this species, obtained at Buckna, Co. Antrim, on 2nd February, 1935.

The rare Wood Warbler, **Phylloscopus s. sibilatrix** (Bechst.), a summer visitor, was heard singing in a wood upon a hillside above Cushendun, An., on 1st June, 1935, by Herbert Malcomson, who also has noticed a Great Snipe, **Capella media** (Lath.), obtained on the moors above Carnlough, An., on 7th October, 1935.

A juvenile female Gargany, **Anas guerguedula** (L.), was shot at Portmore Lough, An., on 12th August, 1935. This, with the exception of another female from Co. Kildare, is the only Irish record for the species since 1899. The bird is now in the Belfast Municipal Museum Collection.

A male Northern Great Spotted Woodpecker, **Dryobates m. major** (L.), was found dead on 11th December, 1935, and is now preserved in the Municipal Museum.

J. A. S. S.

FISHES.

Mr. Byron sent me a specimen of the Greater Fork-beard or Forked Hake (**Phycis blennoides**) which had been found dead on the strand at Castlerock on 23rd December, 1935. This fish is found on the continental slope off the West coast, but records for our Northern coast are few. The

species was taken near Carrickfergus in 1812, '36, '39 and '40; at Portaferry in 1849, and another off the Co. Down coast in 1886.

J. A. S. S.

ENTOMOLOGY.

Lepidoptera.

For the most part these notes are confined to the two years ended 31st March, 1936; it has been thought desirable, however, to incorporate in the general matter some points of interest connected with immigrants and the rarer indigenous insects, even though this means encroaching on periods other than that under review.

The usual immigrants visited the Province in small numbers, and are noted below, but it is interesting to record that **Colias croceus** was taken, singly, for the first time in Co. Down in 1933, and appeared again during both the Spring and late Summer of 1936 at Belfast.

Vanessa cardui and **V. certicae** arrived in the Spring of 1935, large numbers being met with on the slopes and summit of Slieve Croob, Do., on 5th May.

General. It is worth recording that **Agrotis ypsilon** (Rott.) and **Cidaria siterata** (Hufn.) have both been taken (singly) at Tallow in the Spring, following probably hibernation as both specimens were worn.

Nymphalis io. The Peacock Butterfly merits a paragraph as reports and notes indicate that it is to be met with in Spring and Summer in Northern Ireland. It has been found in March in the Belfast and Ballynahinch districts (Crawford and Mason), and in April in localities as far apart as Ballykinlar and Magilligan (Mason). In favour of hibernation it may be stated that a specimen taken in November survived till January; whilst another found indoors in the latter month remained alive till early in March.

APPEARANCES AND AUTHORITIES.

Some interesting appearances, with authorities and localities are appended. An asterisk indicates that the specimen is a record for the County mentioned.

Rhopalocera.

Argynnis aglaia, L., var. *Portrush*, An., 12 vii, 28 (Mason).

Argynnis paphia, L. Belfast, An., 19 viii, 34 (Crawford).

Vanessa cardui, L. (numbers). Slieve Croob, Do., 5 v., 35 (Mason).

- Coenonympha tullia**. Near Bushmills, An., vii., 35 (Mason).
Lycaenopsis argiolus, L. Ballynahinch, Do., 7 v, 35
 (Mason).
Colias croceus, Fourc. Ballykinlar, Do., 12 viii, 33 (Mason).
 Belfast, Do., 29 vi, 35 (Burns).
 „ Do., 27 viii, 35 (Stendall).
 „ Do., 13 ix, 35 (Blackwood).

Heterocera.

- Acherontia atropos**, L. Glenavy, 25 vii, 34 (Sefton).
 Lisburn, An., 14 ix, 34 (Nodder).
Sphinx convolvuli, L. Belfast, 2 ix, 34 (M'Creary).
 Bangor, Do., 5 ix, 34 (Crawford).
 Omagh, Ty., 18 ix, 34 (Crawford).
 Finaghy, An., 6 x, 34 (Rodgers).
 Belfast, An., 14 ix, 35 (Workman).
 Tanderagee, Ar., 18 ix, 35 (Patterson).
***Chaerocampa porcellus**, L. Strangford, Do., 4 vi, 33 (D
 Rankin).
***Cosmotriche potatoria**, L. Ballynahinch, Do., 5 v, 34
 (as larvae). (Mason).
Agrotis ypsilon, Rott. Saintfield, Do., 31 iii, 36 (Mason).
***Plusia bractea**, Fab. Saintfield, Do., 18 vii, 36 (Mason).
***Euclidia glyphica**, L. Grange and Pomeroy, Ty., vi, 34
 (Greer).
Chesias spartiata, Herbst. Belfast, 29 x, 35 (Mason).
Lygris prunata, L. Belfast, 1 viii, 35 (Mason).
Cidaria siterata, Hufn. Saintfield, Do., 31 iii, 36 (Mason).
Zygaena lonicerae, Esp. Belfast, vi, 35 (D. and N. Rankin).

Coleoptera.

The following beetle records, taken from the *Irish Naturalists' Journal*, are new for the county mentioned in each case. An asterisk (*) indicates that the specimen is also a record for Ulster.

W. M. C.

- Carabus catenulatus**, Scop. 24 vii, L. Fea, Ty.
Chlaenius vestitus. ii, ix, 25. Ely Lodge, Fe.
***Bembidion bualei duv.** (Anglicanum Sharp). 2 vi, 34.
 Newtownards, Do. Second locality for Ireland.
Haliphus confinis, Steph. 24 viii, 35. Soldierstown, An.
H. immaculatus, Gerh. 3 v, 34. Lennoxvale, Belfast, An.
H. wehncke, Gerh. viii, 34. Lagan Canal and Kirkecubbin,
 Do. 5 x, 35. Lough Derryadd, Ar.

- H. flavicollis**, Strum. 17 v, 34. Lennoxvale, Belfast, An.
Coelambus impressopunctatus, Schall. Two found by Prof. Gregg Wilson in ponds near Belfast, An.
Graptodytes borealis, Gyll (Davisii Curt). 1 vi, 34. Ligoniel, An.
Hydroporus angustatus, Sturm. 26 xii, 35. Near Giant's Ring, Do.
Ilybius obscurus, Marsh. 19 v, 34. Lagan Canal, An.
I. ater, de G. 4 vii, 35. Dunraven, Belfast, An.
Dytiscus circumcinctus, Ahr. 3 ix, 35. Gawley's Gate, An.
Acilius canaliculatus, Nic. 21 v, 34. Lambeg, Do.; also 4 ix, 35. Gawley's Gate, An.
Philydrus testaceus, F. 31 v, 34. Lennoxvale, Belfast, An.
P. nigricans, Lett. 15 ii, 36. Near Giant's Ring, Do.
***P. minutus**, F. 3 ix, 34. Ballylough Bog, An.
P. coarctatus, Gredl. 14 iii, 36. Pond on Malone Golf Course, An.
***Laccobius ytenensis**, Steph. 30 ix, 33. Bush River, An.
***L. striatulus**, F. (Nigriceps Thoms). 31 xii, 35. Divis Mountain, An.
Hydrochus elongatus, Schall. 3 ix, 35. Soldierstown, An.
***Plataraea brunnea**, F. 20 v, 32. Belfast, An. First in Ireland.
Acrotona fungi, Grav. var. **dubia**. 12 v, 32. Belfast, An.
Tachyporus formosus, Matth. iv, 34. Drum, An.
***Tachinus proximus**, Kr. 6 ix, 33. Collin Mountain, An.
Philonthus discoideus, Gr. 11 ix, 33. Belfast, An.
Peaderus riparius, L. 3 ix, 35. Gawley's Gate, An.
Stenus carbonarius, Gyll. 14 iv, 33. Loughbrickland, Do.
S. bifoveolatus, Gyll. 28 iii, 36. Near Giant's Ring, Do.
Oxytelus complanatus, Er. 5 viii, 33. Castlerock, Ld.
Deliphrum tectum, Pk. 14 x, 33. Collin Mountain, An.
Lesteva pubescens, Man. 2 vi, 34. Drum, Do.
Proteinus ovalis, Steph. 6 ii, 33.
Catops fuscus, P2. 5 ix, 34. Portballintrae, An.
Scydmaenus tarsatus, Müll. 27 viii, 32. Belfast, An.
***Silpha tristis**, Ill. Belfast, An.
Tenebriodes mauritanicus, L. 25 xii, 34. Belfast, An.
Monotoma picipes, Herbst. 21 v, 32. Drum, An.
***Oryzaephilus surinamensis**, L. 6 iv, 32. Belfast, An.
Cryptophagus cellaris, Scop. 30 viii, 32. Belfast, An.
Paramecosoma melanocephalum var. **infuscatum**, Halb. 21 v, 32. Belfast, An.
***Atomaria apicalis**, Er. 7 v, 34. Belfast, An.
***Dryops griseus**, Er. 20 x, 34. Five at Stoneyford, An. Second locality for Ireland.

Helodes minuta, L. 13 vi, 33. Lagan Canal, An.
Cyphon ochraceus, Steph. 7 ix, 34. Ballintoy, An.
Podabrus Alpinus, Pk. 7 vi, 33. Downhill, Ld.
**Ptinus tectus*. iii, 32. Belfast, An.
Donacia crassipes, F. 11 vii, 34. Gortnacarrow, Fe.
**Tribolium confusum*, Duv. 6 iv, 32. Belfast, An.
Apion cruentatum, Walt. 30 ix, 33. Giant's Causeway, An.
**Otiorrhynchus porcatus*, Herbst. 15 iv, 32. Belfast, An.
Phyllobius pomonae, Ol. June, 35. Both An. and Do.
Orthochaetes setiger, Beck. 20 iii, 34. Belfast, An.
Anthonomus comari, Crotch. 2 viii, 33. Newcastle, Do.
Cryptorrhynchus lapathi, L. 3 ix, 34. Gawley's Gate, An.

ODONATA.

The available records for Northern Ireland are scanty, but are given below in the hope that Entomologists generally will pay more attention in future to this group. The periods covered are the months of June, July and August in the years 1935 and 1936.

L. J. MASON.

Odonata.

Pyrrosoma nymphula, Sulz. F.. Do.
Enallagma cyathigerum, Charp. C. An., Do.
Erythromma najas, Hansem. R. Do.
Agrion splendens, Harr. L.C. Ar. (Lough Neagh).
Aeshna juncea, Linn. F. An.; R. Do.; L.C. Ld.
Libellula quadrimaculata, Linn. L.C. An., Do.
Sympetrum striolatum, Charp. C. An., Ar., Do., Ld.

MOLLUSCA.

In the following list an effort has been made to collect all unpublished records of uncommon marine mollusca in N.E. Ireland. Only specimens taken on the coasts of Counties Londonderry, Antrim, and Down have been included, and the records cover a period of six years. Records previous to the years 1934-5-6 (the period which these *Proceedings* cover) are included for the sake of completeness. Opisthobranchiate Mollusca have not been included, but a paper of mine in *Irish Nat. Journ.* VI, 200-202 (1937) gives a number of Northern Irish records for this group.

Many Co. Londonderry records will be found in my list of Magilligan mollusca (in *Journ. Conch.* XX, 168-175. 1935).

In every case I have seen and identified the species; for help with critical species I am greatly indebted to Mr. J. R. le B. Tomlin, M.A., F.R.E.S., and Mr. R. Winckworth, M.A., F.R.G.S.

The nomenclature and arrangement are those of Winckworth's 1932 list (*Journ. Conch.* XIX, 211-252).

Asterisks indicate a new County record.

(c.) following a person's name means that the specimen was collected by that person, but identified by me.

NORA FISHER.

Diodora apertura (Mont.). 2, living, on *Chlamys opercularis*, dredged E. of Dunsey Island, Strangford Lough, Do., Aug., 1935. Major Savage-Armstrong (c).

Patina laevis (Pennant). One, living, on stem of *Laminaria digitata*, Jordanstown, Co. An., shore of Belfast Lough, 4-3-1935. Rare so far up the Lough. N. F. (c).

Patelloida tessulata (Muller). Living, mod. frequent, Annalong, Do., 30-4-1932. N. F. (c).

Margarites helycinus (Fab.). Living, abundant, under stones, top of Laminarian zone, Red Bay, An., 11-5-1935. N. F. (c).

Monodonta lineata (da Costa). For recent N.E. Irish records see Fisher in *Irish Nat. Journal*, VI, 102. (1936).

Littorina saxatilis jugosa (Mont.). At Bath Lodge rocks, Ballycastle, Co. An., is a large colony of this form, of every conceivable colour. When examined on 19-6-1935 not a single specimen of the type-form could be found—all were var. *jugosa*. N. F. (c).

Hydrobia ventrosa (Mont.). Still fairly abundant at Ballycarry (above the bridge), Larne Lough, An., and also in Glynn Gut 1, 10-11-1935. N. F. and R. MacD. (c).

Cingula semistriata (Mont.). Rather rare, in shellsand, Port Ganiay, Giant's Causeway, An., 1933. R. J. Welch (c).

*One, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).

Alvania beanii (Thorpe). 4, shellsand, Ballintoy, An., 2-9-1933. R. J. W. (c).

Alvania punctura (Mont.). Several, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).

Rissoa inconspicua (Alder). A few, shellsand, det. J. R. le B. Tomlin, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c).

*A few, shellsand, det J. R. le B. Tomlin, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c). 2, shellsand, Newcastle, Do., 4-9-1935. R. J. W. (c).

Rissoa lilacina (Récluz). Rare, shellsand, det. R. Winckworth, Port Ganiay, Giant's Causeway, 13-6-1931. R. J. W. (c).

Tornus subcarinatus (Mont.). 2, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c). One, dead, Dunseverick, Whitepark Bay, An., 11-8-1935. R. J. W. (c).

Cerithiopsis tubercularis (Mont.). One, living, Port Ganiay, Giant's Causeway, 30-9-1933. Miss Agatha R. Crawford (c).

Eulima glabra (da Costa). One, shellsand, Newcastle, Do., 4-9-1935. R. J. W. (c).

Eulima trifasciata (J. Adams). One, shellsand, Ballintoy, An., 2-9-1933. R. J. W. (c).

Chrysallida indistincta (Mont.). One, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c). One, dead, dredged off Killyleagh, Strangford, Do., in 4-7 fms., 21-9-1930. N. F. (c).

Chrysallida spiralis (Mont.). Rare, in following localities:
 (1). Shellsand, Ballintoy, An., 2-9-1933. R. J. W. (c).
 (2). do. Dunseverick, Whitepark Bay, An., 11-8-1935. R. J. W. (c).
 (3). do. Port Ganiay, Giant's Causeway, 1933. R. J. W. (c).
 (4). do. Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).

***Menestho divisa** (J. Adams). One, Rock Angus, entrance Strangford Lough, Do. R. J. W. (c)—no date.

***Menestho obliqua** (Alder). Two, det. R. Winckworth, shellsand, Port Ganiay, Giant's Causeway, 13-6-1931. R. J. W. (c). These specimens have already been noted in *Journal of Conchology*, vol. 19, p. 187, 1932. New to N.E. Ireland.

Menestho warreni (Thompson). 3, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c).

Odostomia nivosa (Mont.). One, det. R. Winckworth, with remains of animal, and yellow operculum within, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c). 3, det. R. Winckworth, shellsand, Ballintoy, An., 2-9-1933. R. J. W. (c).

- Odostomia acuta** (Jeffreys). 3, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c). One, shellsand, Newcastle, Do., 4-9-1935. R. J. W. (c).
- Odostomia scalaris** (MacGillivray). Scarce, shellsand, Port Ganiay, Giant's Causeway, 1933. R. J. W. (c). One, shellsand, Dunseverick, Whitepark Bay, An., 11-8-1935. R. J. W. (c). One, shellsand, Portrush, 1933. Noel Gregg (c). 3, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).
- Lamellaria perspicua** (L.). 2, alive, L.W.M., Jordanstown, Co. Antrim shore of Belfast Lough, 4-3-1935. N. F. (c). One shell, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).
- ***Trivia monacha** (da Costa). Now that the spotted and unspotted forms have been recognised as separate species (see *Journal of Conchology*, vol. 19, pp. 336-7, 1933) the older records require confirmation. So far the spotted form (**T. monacha** (da Costa)) has been seen from Magilligan (see paper in *Journ. Conch.*); a single living specimen was taken at L.W.O.S.T., Settle Beds, between Killough Harbour and Coney Island, Do., 29-7-1936. N. F. (c).
- Lora trevelliiana** (Turton). One, det. R. Winckworth, shellsand, Port Ganiay, Giant's Causeway, 13-6-1931. R. J. W. (c). A rare species in N.E. Ireland.
- ***Diaphana minuta** (Brown). One, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).
- Hermania scabra** (Muller). One, Portrush, 1933. N. G. (c).
- Ossiania alata** (Forbes). One, det. R. Winckworth, shellsand, Port Ganiay, Giant's Causeway, 13-6-1931. R. J. W. (c).
- *One, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c). The type-form of this sp. has not previously been recorded from N.E. Ireland.
- ***Pelta coronata** (Quatrefages). Two living specimens, L.W.M., Murlough Bay, An., 17-6-1935. N. F. (c). New to N.E. Ireland—5th Irish record.
- Leucopepla bidentata** (Mont.). Living, abundant, Castleward, Strangford, Do., 1933. N. G. (c).
- Phytia myosotis** (Drap.). Living with **Hydrobia ulvae** in salt-marsh at Eglinton, Ld., 6-5-1935.
- Lepton clarkiae** (Clark). One worn valve, shellsand, Port Ballintrae, An., 1-10-33. N. F. (c).
- Montacuta ferruginosa** (Mont.). Frequent, both complete specimens and odd valves, shellsand, Minerstown Strand, Dundrum, Do., 11-6-1932. N. F. (c).

- Mysia undata** (Pennant). 2 fresh valves, Red Bay, An., June, 1931. Miss Brooke (c). Another valve, same place, Sept., 1933. N. F. (c). A species which is apparently nearly extinct in N.E. Ireland.
- Tellina squalida** (Mont.). Single valves fairly common, Red Bay, An., 1931, 1933. N. F. (c). A rare species in N.E. Ireland.
- Tellina domacina** (L.). 2 valves, Red Bay, An., 1930. N. F. (c).
- Gari depressa** (Pennant). 2 valves collected by W. H. Patterson are in Dublin Museum labelled "Sandbanks off Carrickfergus, Jan., 1900." Rare in N.E. Ireland.
- Solecortus chamasolen** (da Costa). Valves quite plentiful, some fresh-looking, Red Bay, An. N. F. (c). For further notes on the distribution of this species in N.E. Ireland see Fisher, in *Irish Nat. Journ.* 3, p. 91 (1930) and vol. 5, p. 201 (1935).
- Calopodium pinna** (Mont.). A valve, Red Bay, An., June, 1931. Miss Brooke (c).

In conclusion I would like to pay a tribute to my old friend, the late Mr. R. J. Welch, M.Sc., M.R.I.A. Without his invaluable assistance in collecting and forwarding to me shells and from many Ulster localities the above list would have been but a poor thing.

N. F.

OTHER MOLLUSCA RECORDS.

The finding of the Freshwater Mollusk *Planorbis corneus* in the Lagan Canal in 1933 led to an investigation by D. J. Carpenter and Ranald MacDonald as to its distribution in 1935. It was met with from New Forge to Drumbridge, at some places in quantity.

A Giant Cuttlefish *Sthenoteuthis caroli* (Furtado) was washed ashore at Castlerock, Ld., on 3rd November, 1935, after cold stormy conditions and secured by Mr. W. G. Byron, who forwarded it to me. So far as can be ascertained this is the first record from Irish waters.

J. A. S. S.

LIST OF MEMBERS.

Any changes of address should be at once notified to the Honorary Secretary, Mr. Joseph Skillen, 25 Stranmillis Gardens, Belfast.

The dates prefixed to the names of Members signify
year of election.

This List comprises the names of all persons who were Members at 31st March, 1938, and whose names are still on the Register of Membership at time of going to press. It does not include the names of deceased Members.

HONORARY MEMBERS.

1914. Charlesworth, Professor John K., D.Sc., Ph.D., F.G.S.,
Queen's University, Belfast.
1935. Greer, Thomas, The Bungalow, Sandholes, Dungannon.
1934. Jackson, J. Wilfrid, D.Sc., F.G.S., Manchester Museum,
Manchester.
1923. Nodder, Charles R., M.A. (Cantab.), 1 Council House Street,
Calcutta, India.
1923. Nodder, Mrs. Winifred, 1 Council House Street, Calcutta,
India.
1883. Praeger, R. Lloyd, D.Sc., B.A., B.E., M.R.I.A., 19 Fitz-
william Square, Dublin.
1890. Skillen, Joseph, 25 Stranmillis Gardens, Belfast.

CORRESPONDING MEMBERS.

1932. Barnet, George, Sixtowns, Draperstown.
1935. Benington, J. A., B.Sc., Friends' School, Lisburn.
1936. Paterson, T. G. F., County Museum, Co. Armagh.
1929. The Hon. Secretary of the Limavady Naturalists' Field Club.
1929. do. do. Londonderry do. do.
1933. do. do. Omagh do. do.
1923. do. do. Route do. do.
1931. do. do. Tyrone do. do.

LIFE MEMBERS.

1926. Rohleder, Dr. Herbert P. T., Rhokana Corporation Ltd.,
N'Changa Mine, P.O. N'Changa, Northern Rhodesia.
1903. Stelfox, A. W., A.R.I.B.A., M.R.I.A., 14 Clareville Road,
Rathgar, Dublin.
1893. Wilson, Alex. G., J.P., M.R.I.A., Cro-glin, Ballyaughlis.

ORDINARY MEMBERS.

1923. Acheson, F. W., 37 Osborne Park.
1935. Acheson, Robert, 196 Upper Newtownards Road.
1935. Acheson, Mrs. Robert, 196 Upper Newtownards Road.
1932. Adair, James, 3 Sunbury Avenue.
1934. Adams, Miss Frances M. J., M.Sc., 35 Malone Road.

1937. Agnew, Mrs. Jennie, Laurel Lodge, Victoria Road.
 1915. Aird, Hugh, 10 King Street.
 1932. Albin, Herbert, 236 Ravenhill Road.
 1917. Alderdice, R. Sinclair, 9 Wellington Place.
 1922. Alexander, K. M., 30 Kelvin Parade.
 1934. Allison, R. S., 27 University Square.
 1934. Anderson, Rev. A. C., M.A., B.D., Newcastle.
 1930. Anderson, Mrs. N., Ballyhossett, Downpatrick.
 1911. Anderson, Miss S. M., 4 Church View, Holywood.
 1930. Anderson, Miss W. F. E., 49 Brookhill Avenue.
 1912. Andrews, Dr. Marion B., Orsett, Derryvolgie Avenue.
 1927. Annesley, Frazer M., Kathmore.
 1932. Asher, H. M. F., Campbell College, Belmont.
 1935. Atkinson, W. A. M., Royal Hotel, Larne.
1927. Bailey, C. S., M.A., Methodist College.
 1932. Bamford, Miss Ethné, Grosvenor, Galwally Avenue.
 1934. Barry, Miss Eleanor, 19 Kirkliston Drive.
 1929. Beattie, R., Horse Shoe House, Ballysillan.
 1929. Beattie, Mrs. R., Horse Shoe House, Ballysillan.
 1924. Beatty, C., J.P., Ledlie Villa, Coalisland.
 1926. Beck, Miss Louise, M.Sc., 63 University Road.
 1935. Beer, Ralph, "The Watchhouse," Groomsport.
 1935. Begg, Miss Margaret M., 30 Mount Charles.
 1934. Belford, A. J., Richmond, Marlborough Park South.
 1923. Bell, David S., High Street, Carrickfergus.
 1932. Bell, Miss E. M., 75 Shandon Park.
 1935. Bell, S. D., J.P., 63 Ann Street.
 1937. Bell, W. M., 31 Fitzwilliam Street.
 1933. Benson, Ronald H., 29 Luxor Gardens.
 1933. Benson, Mrs. E. H., 29 Luxor Gardens.
 1924. Berry, Col. R. G. J. J., M.R.I.A., F.R.S.A.I., Ardaluin,
 Newcastle.
1930. Bingham, Mrs. A. B., 86 Palmer Street.
 1934. Bingham, W. P., Lisbean, Donegall Park Avenue.
 1914. Bird, Miss, 5 Courtland Avenue, Norbury. S.W.16.
 1934. Black, Herbert S., 7 Eastleigh Drive.
 1928. Black, Dr. J. S., 18 Myrtlefield Park.
 1929. Black, Thomas, 27 Agnes Street.
 1923. Blackwood, Reginald W. H., J.P., 24 University Square.
 1898. Blackwood, Miss Sarah, 6 College Green.
 1923. Blair, John T., 33 Ophir Gardens.
 1936. Bland, Major Francis Cecil, Cloona, Castlewellan.
 1931. Bourke, Miss K., B.Sc., 13 University Avenue.
 1937. Boyd, Miss Elsie C., 22 Sans Souci Park.
 1893. Boyd, Miss E. S., Springfield Lodge, King's Road, Guernsey.
 1922. Boyd, J. St. Clair, 12 Malone Road.
 1923. Boyd, Miss K. St. Clair, 12 Malone Road.
 1916. Bradley, Miss L. T., 10 Thornhill Park.
 1935. Brodie, William, M.Inst.C.E., Gleneden, Portadown.
 1937. Brown, Miss Amy, Manse Road, Jordanstown.
 1923. Brown, W. P., B.A., LL.B., Beresford House, Coleraine.
 1936. Bulla, Miss M., 272 Lisburn Road.
 1933. Burgoyne, Frank J. P., Linen Hall Library.
 1929. Burns, Wm. G., 116 Walmer Street.
 1899. Burrowes, W. B., Ballynafeigh House.
 1933. Byrne, Miss Kathleen, P.E. School, Glenview Street.

1927. Cairns, Hugh, B.Sc., Mountcairn, Comber.
1932. Caldwell, R. D., Heatherton, Killagan P.O.
1921. Campbell, A. Albert, F.R.S.A.I., Drumnaferrie, Rosetta Park.
1921. Campbell, Mrs. A. Albert, Drumnaferrie, Rosetta Park.
1933. Campbell, Henry, Cuiltaire, Upper Malone Road.
1933. Campbell, Mrs. Henry, Cuiltaire, Upper Malone Road.
1927. Campbell, Miss H., Methodist College.
1935. Campbell, Miss Isobel S., 30 Lucerne Parade.
1909. Campbell, John, Albert Brickworks, Carrickfergus.
1934. Campbell, J. O., B.E., B.A., Moyallen, Annadale Avenue.
1929. Campbell, Langford, 65-67 Corporation Street.
1936. Campbell, Samuel R., 8 Glenarm Road, Clonlee, Larne.
1891. Capper, J. Malcolm, 20 Bedford Street.
1923. Carpenter, D. J., A.R.C.Sc.L., Sharnhen, Greenisland.
1923. Carrothers, E. N., 7 Fitzwilliam Street.
1933. Chamberlain, R., M.A., Matopo, Demesne Road, Holywood.
1928. Chambré, Mrs. N., Northland Road, Dungannon.
1920. Chandler, W. P., 34 Sunningdale Park.
1920. Chandler, Mrs. W. P., 34 Sunningdale Park.
1919. Chase, Capt. C. D., M.C., M.A., Campbell College.
1901. Cheyne, H. H., Roseneath, Bangor.
1920. Churchill, Miss, 34 Hamilton Road, Bangor.
1922. Clarke, Geo. W., M.B.E., Nottingham.
1933. Clarke, John O., 2 Wellington Place.
1932. Clarke, Miss Maud, 431 Lisburn Road.
1931. Clarke, R. E. L., B.A., B.E., 42 Railway Street, Lisburn.
1894. Cleland, Alex. M'I., 28 Green Road.
1894. Cleland, Mrs., 28 Green Road.
1890. Cleland, James A., D.L., Clanbrassil, Cultra.
1934. Coey, Miss M. E., Ardeen, Larne.
1922. Cole, Francis J., Ardmara, Greenisland.
1936. Colhoun, John, B.Sc., Royal College of Science, London, S.W.7.
1923. Colton, John M., Lisbawn, Hawthornden Road.
1932. Common, R. H., M.Sc., 19 Locksley Park.
1932. Conelly, Alan, Conalan, Church Road, Newtownbreda.
1931. Convery, Thos. H., 53 Botanic Avenue.
1931. Copeland, William J., Innellan, Diamond Gardens.
1935. Cordner, W. S., B.A., H.Dip.Ed., 17 Balmoral Avenue.
1934. Corkey, Very Rev. Wm., M.A., D.D., Windsor Manse.
1936. Cornelius, Miss Alice, Loughry, Helen's Bay.
1922. Corry, Hon. Cecil, Castle Coole, Enniskillen.
1934. Coulter, R. M'D., LL.B., 43 Lansdowne Road.
1934. Cowan, Harold M'N., Methodist College.
1923. Cowden, Wm., Knockbryn, Carnalea.
1928. Craig, Miss Isa, Willowpark, Whiteabbey.
1921. Crawford, Lieut.-Col. F. H., C.B.E., Cloreen, Malone Road.
1934. Crawford, John, J.P., 10 Knocktern Gardens.
1921. Crawford, W. M., B.A., F.R.E.S., Orissa, 58 Marlborough Park South.
1922. Cromie, Miss Maude, Seeburg, Castle Avenue.
1922. Crothers, Miss, 7 Easton Crescent.
1934. Crozier, Dr. Howard, 3 University Square.
1937. Crozier, Mrs. T. H., 3 University Square.
1937. Crymble, James, Ballyearl, Carnmoney.
1935. Cunningham, James, Roxboro House, Rostrevor.

1935. Cunningham, Miss Louie M., Roxboro House, Rostrevor.
 1915. Cunningham, Josias, M.B.O.U., Drinagh, Kensington Road.
 1932. Cunningham, Mrs. Isobel, Drinagh, Kensington Road.
 1913. Cunningham, Miss M. E., Glencairn Cottage, Larne.
 1884. Cunningham, Rt. Hon. Samuel, P.C., Fernhill.
 1924. Cupples, Miss Diana, 124 Malone Avenue.
 1933. Cupples, Miss Edith, 124 Malone Avenue.

 1937. Dallas, James, 189 Cliftonville Road.
 1924. Dallas, Miss, 2 Bloomfield Gardens.
 1921. Davison, A. H., F.R.S.A.I., 1 Salisbury Villas, Salisbury Avenue.
 1928. Davison, Mrs., 1 Salisbury Villas, Salisbury Avenue.
 1936. Davison, Miss Lucy I., 177 Belmont Road.
 1934. Deane, Campbell Douglas, Threave, Cranmore Park.
 1925. Deans, Samuel A., 141 Ormeau Road.
 1919. Deans, T. M., B.A., LL.D., Academy House, Rosetta.
 1935. Dick, Miss M. E., M.A., 8 Wellington Park.
 1925. Dickey, Dr. Wm., 86 Antrim Road.
 1921. Dinsmore, J. A. S., Island House, Greenisland.
 1926. Dobson, Mrs. Mary, Oaklands, Chichester Park.
 1921. Doggart, Henry, 29 Sicily Park.
 1935. Dougherty, James, 29 Ravenhill Park.
 1922. Douglas, John, Helen's Bay.
 1933. Duffin, Frank, Rokeby, Deramore Park.
 1936. Duffin, Mrs. N., Rokeby, Deramore Park.
 1908. Duncan, W., 58 Howard Street.
 1928. Dunlop, Miss May L., 142 University Street.
 1931. Dunlop, Miss Minnie, Chichester Gardens.
 1927. Dunne, H. E., 3 Saxton Road, Great Crosby, Lancashire.
 1927. Dunne, Mrs. H. E., 3 Saxton Road, Great Crosby, Lancashire.

 1908. Elliott, E. J., J.P., 4 Bain's Place.
 1924. Elliott, Miss Isabel, Shorthand Institute, Royal Avenue.
 1937. Ellison, William, Meeting Street, Dromore.

 1924. Fallon, Mrs., 25 St. James' Park.
 1930. Ferguson, Miss A. L., 116 Balmoral Avenue.
 1928. Ferguson, Miss Elizabeth, 2 Glanworth Drive.
 1932. Ferguson, Mrs., M.B.E., Silversprings, Templepatrick.
 1906. Finlay, Archibald H., A.C.G.I., A.I.E.E., Willesden, Holywood.
 1897. Finlay, Miss A. M., Kells, Abbott's Langley, Herts.
 1927. Fisher, E., Laurieston, Greenisland.
 1932. Fisher, Mrs. E., Laurieston, Greenisland.
 1937. Fleming, Miss Betty, 35 Everton Drive.
 1928. Fleming, W. M'K., 20 Knutsford Drive.
 1930. Flynn, Miss K., Clonlee, St. James' Park.
 1931. Flynn, Prof. T., D.Sc., Queen's University, Belfast.
 1935. Forrest, Miss Edith H., 308 Crumlin Road.
 1935. Forrest, Miss Lavinia M., 308 Crumlin Road.
 1936. Forsythe, John, 497 Lisburn Road.
 1923. Foster, A. R., M.A., Belfast Royal Academy.
 1936. Foster, Mrs. Rubie, Edgehill, West Circular Road.
 1924. Frame, Miss H., 15 Skegoniel Avenue.
 1934. Fry, Wm. Dennis, High Street, Holywood.

1930. Gaffikin, Miss M., 1 Glenada Terrace, Newcastle.
 1935. Gardiner, Miss Mary, M.A., Glenard, Holywood.
 1927. Gardner, Miss E. R., 21 Chlorine Gardens.
 1933. Gardner, Miss M. L., 2 Sans Souci Park.
 1917. Gibson, Mrs., Bonnington, Landsdowne Road.
 1936. Gibson, Samuel, 112 Ainsworth Avenue.
 1936. Gillespie, Miss Catherine R., B.A., 28 Knockdene Park South.
 1936. Gilmore, W. M., B.A.I., 26 Downview Avenue.
 1926. Glasgow, Henry L., Cookstown.
 1930. Glassey, S. D., Macosquin, Coleraine.
 1935. Gordon, Mrs. Annie M., 130 Eglantine Avenue.
 1937. Gordon, Miss Cynthia, 72 Upper Newtownards Road.
 1921. Gore, W., F.R.S.A.I., Municipal College of Technology.
 1929. Gracey, Walter, Kilrea.
 1933. Graham, Archibald, Botanic Gardens Park.
 1924. Graham, Mrs. Sarah, 138 Dunluce Avenue.
 1895. Green, W. A., F.R.S.A.I., Dunmore, Antrim.
 1920. Greenham, Miss J. C., 33 Taunton Avenue.
 1917. Greeves, J. R. H., B.Sc., Coolnashee, Crawfordsburn.
 1901. Greeves, J. Theodore, Nendrum, Knockdene Park.
 1937. Greeves, Norman, Garranard, Strandtown.
 1918. Greeves, O. V., Colin House, Dunmurry.
 1901. Greeves, W. Leopold, Rockfield, Dundonald.
 1924. Gregg, Rev. W. J., 8 Wheatfield Gardens.
 1929. Gregg, Mrs. W. J., 8 Wheatfield Gardens.
 1924. Griffith, Miss Grace A., Belleville, Cliftonville Road.
 1924. Griffith, Miss K. H., Belleville, Cliftonville Road.
 1934. Griffith, Miss Robina, Belleville, Cliftonville Road.
 1935. Guiler, Mrs. E., 41 Rosetta Park.
 1926. Hale, Thomas, 37 Adam Street.
 1926. Hall, Miss Janie M., Moyrusk, Moira.
 1928. Hamill, Miss Nana, 42 Sans Souci Park.
 1930. Hamilton, John, 1 Kinnaird Terrace.
 1930. Hamilton, Mrs. John, 1 Kinnaird Terrace.
 1930. Hamilton, W. H., Hillside, 699 Antrim Road.
 1931. Hammond, Miss M., The Library, Queen's University.
 1932. Handley, George, 30 High Street, Holywood.
 1925. Hanna, Mrs. S. M., 43 Cooldarragh Park.
 1924. Harbinson, Miss Margaret, Doonvarna, Landsdowne Road.
 1936. Harris, Boyd, B.Com.Sc., 64 King's Road.
 1931. Hartley, J. J., M.Sc., Queen's University.
 1933. Henderson, R. G., F.C.A., 5 Sunningdale Park.
 1933. Henderson, Mrs. R. G., 5 Sunningdale Park.
 1933. Henry, Fred. W., Carlton, Donegall Place.
 1876. Heron, F. Adens, D.L., F.R.S.A.I., Maryfield, Holywood.
 1922. Heron, Miss M. E., Maryfield, Holywood.
 1937. Hetherington, Miss Maureen, Ardkeen, Greenisland.
 1933. Hewitt, John H., B.A., Rothmar, 7 Fortwilliam Park.
 1934. Hill, Miss Eva, Hillhall, Bloomfield.
 1933. Hill, Miss Hebe, Hillhall, Bloomfield.
 1932. Hill, Miss Maude R., Hillhall, Bloomfield.
 1933. Hill, Dr. Thos. E., 406 Ravenhill Road.
 1905. Hobson, Mrs., Aiteannach, Crawfordsburn.
 1895. Hogg, A. R., 67 Great Victoria Street.
 1936. Holbrook, Patrick J., 10 Lincoln Avenue,

1904. Holland, Frank J., Fairyhill, Osborne Gardens.
 1903. Holland, Miss, Highbury, Cadogan Park.
 1928. Holmes, Miss Margaret, Denholme, Diamond Gardens.
 1929. Horscroft, George, Botanic Gardens Park.
 1921. Houston, H. S., Slievemara, Jordanstown.
 1914. Houston, James D., Northern Bank House, Kilrea.
 1926. Howard, S. R., Walden, Church Avenue, Dunmurry.
 1926. Huddleston, Miss M. I., Roe Valley District Hospital, Limavady.
 1927. Hughes, Joseph, 28 Peel Street.
 1936. Hummel, Miss J. M. A., 15 Broomhill Park.
 1922. Hunter, Dr. J. A., Kirkinner, Balmoral Avenue.
 1929. Hunter, Dr. R. H., 20 Haypark Avenue.
 1929. Hyslop, James L., 20 Mount Eden Park.
 1935. Irvine, Mrs. M., 18 Cyprus Avenue.
 1927. Jackson, James, Winona, Princes Gardens, Larne.
 1935. Jackson, J. L. S., 133 Duncairn Gardens.
 1923. Jackson, M., Maze, Hillsborough.
 1937. Jacques, Miss Mary I., 35 Haddington Gardens.
 1921. Johnston, E. C., Lyncote, Helen's Bay.
 1906. Johnston, F. W., The Lodge, Spa, Ballynahinch.
 1923. Johnston, Miss Jean, Fortairn, 711 Antrim Road.
 1916. Johnston, Miss M. B., Fortairn, 711 Antrim Road.
 1934. Johnston, Miss K., 9 Cyprus Park.
 1937. Johnston, Mr. R. D., 500 Oldpark Road.
 1922. Johnston, T. J., 134 Somerton Road.
 1930. Johnston, W. J., 45 Pretoria Street.
 1930. Johnstone, Miss G., 6 University Street.
 1932. Jones, Miss Amy E. E., 408 Ravenhill Road.
 1934. Joynt, C. H. A., 24 Marlborough Park South.
 1924. Keenan, Miss Mary, 86 Falls Road.
 1917. Keiller, W., 7 Abercorn Street.
 1934. Kelly, Miss M., 7 Birch Drive, Holywood.
 1934. Kelly, Miss Minnie, 38 Ailesbury Road.
 1936. Kerr, Miss Phyllis, 41 Wellington Park.
 1936. Kertland, Mrs., 9 Knockdene Park North.
 1935. Kertland, Miss M. Patricia H., M.Sc., 9 Knockdene Park North.
 1926. Kevin, Miss Kathleen, B.A., 262 Stranmillis Road.
 1936. Kilpatrick, Miss Marian D., Annahavil, Ballycastle.
 1934. Kirkpatrick, Miss Frances, Lisanore, Rosepark, Dundonald.
 1923. Kitchen, Gilbert Ingram, 25 Kelvin Parade.
 1930. Knox, Miss F. B., Roxburgh, Ranfurly Avenue, Bangor.
 1932. Laird, James D., 163 Grosvenor Road.
 1931. Larmor, Mrs. Ida, Fairyhill, Dunmurry.
 1923. Lauder, William, 76 Haypark Avenue.
 1935. Lavery, Miss M. Beatrice, 11 Mount Eden Park.
 1928. Law, William, 52 Hopefield Avenue.
 1923. Lawlor, H. C., M.A., 14 Windsor Avenue.
 1923. Lawlor, Mrs. H. C., 14 Windsor Avenue.
 1932. Lawrie, Mrs. E. D., 12 Park Drive, Bangor.
 1931. Lee, Miss E., Claremont, Chichester Park.
 1934. Lepper, Francis A., New College, Oxford.

1931. Lepper, George C., 72 High Street.
 1920. Lepper, R. S., M.A., F.R.Hist.S., Elsinore, Crawfordsburn.
 1929. Lewars, David B., 17 Dundela Gardens.
 1926. Liggett, Miss Margaret M., 109 The Mount.
 1937. Lindsay, Mr. W. G., 111 Melrose Street.
 1936. Litster, Jack, 45 Denorrton Park.
 1937. Little, W. M., 120 Ardenlee Avenue.
 1937. Little, Mrs. W. M., 120 Ardenlee Avenue.
 1921. Loughridge, James, 7 Innisfayle Park.
 1931. Loughridge, J. S., F.R.C.S., 26 University Square.
 1918. Lowry, Miss A., 198 Upper Newtownards Road.
 1908. Lowry, James, Llewellyn Avenue, Lisburn.
 1935. Lynn, Miss Mary J., D.Sc., Albany Cottage, Carrickfergus.
 1931. Lyons, Rev. R. N., 90 Eglantine Avenue.

 1936. Macartney, Miss Ada, 10 Locksley Park.
 1934. Macartney, Miss L., 10 Locksley Park.
 1936. Macdonald, Angus, 112 Antrim Road.
 1931. Macdonald, Ranald, 112 Antrim Road.
 1936. Mackie, Jack Pringle, Marietta, Barnetts Road.
 1915. Maconochie, Rev. D. H., B.A., B.D., The Manse, Holywood.
 1915. Maconochie, Mrs., The Manse, Holywood.
 1905. Macoun, Mrs. S. M., 184 Malone Road.
 1927. Magill, Mrs. Edith, 47 Knock Road.
 1920. Magowan, A., Glynn, Chichester Park.
 1932. Maguinness, Miss Kathleen, 42 Cabin Hill Gardens.
 1901. Malcolmson, Herbert T., 32 Arthur Street.
 1937. Malet, Miss Dorothy M., Claraville, Newcastle.
 1922. Marshall, Miss M. E., 82 Ardenlee Avenue.
 1937. Martin, Miss Isabel K., 14 Ebrington Gardens.
 1923. Martin, Mrs. Kathleen R., 17 College Gardens.
 1935. Mason, Louis J., M.B.E., 9 North Parade.
 1916. Masterson, Miss, 93 Wellesley Avenue.
 1929. Matchett, Miss C., 40 Lansdowne Park.
 1915. Mawdsley, Miss, 28 Green Road.
 1923. Maxwell, Miss F. E., Fierna, Osborne Park.
 1923. Maxwell, Joseph, J.P., Fierna, Osborne Park.
 1925. Maxwell, Miss Isabella, 10 Luxor Gardens.
 1937. Maxwell, W. C., 3 Wellington Place.
 1937. Maybin, Miss Agnes, Kilgad Cottage, Kells, Ballymena.
 1917. Megaw, Rev. W. R., B.A., M.R.I.A., The Manse, Rosetta.
 1936. Metcalfe, Mrs. Phoebe L., B.A., Hawthornden House, Knock.
 1936. Metcalfe, Miss P., B.Sc., Hawthornden House, Knock.
 1932. Milligan, F. Orr, Farrenshane House, Antrim.
 1922. Mills, Frederick A. C., 12 St. Jude's Avenue.
 1932. Moffatt, Dr. Grace K., D.P.H., 2 Chelmsford Place, Larne Harbour.
 1922. Moffatt, James A., 2 Chelmsford Place, Larne Harbour.
 1937. Montgomery, Miss Jane, 2 Sandhurst Road.
 1936. Montgomery, Rev. Robert, 54 Malone Park.
 1936. Montgomery, Mrs. Rosemary, 54 Malone Park.
 1928. Mooney, Miss Helena, 15 Ailesbury Drive.
 1931. Mortimer, John S., 200 Ravenhill Road.
 1922. Murray, B., 628 Ravenhill Road.
 1923. Muskett, A. E., M.Sc., 232 Stranmillis Road.

 1929. M'Alister, W. G., Mount View, Dromore.

1936. M'Callister, Miss M., Quinnville, Holywood.
 1933. M'Cammon, Miss Hester, 10 College Green.
 1909. M'Cance, James, 350 Antrim Road.
 1915. M'Carthy, Mrs., Freshford, Knock.
 1921. M'Carthy, W. J., Ashley, Alexandra Park.
 1931. M'Cleery, J. M., Richdale House, Marino.
 1917. M'Devitt, H., Ballygallon, Breenagh, Lifford.
 1924. M'Donnell, Miss Kathleen P., 110 Cullingtree Road.
 1921. M'Glavery, R., The Brickworks, Springfield Road.
 1931. M'Gowan, J. H., 7 Brunswick Road, Bangor.
 1926. M'Gregor, Miss Sarah, 12 Eglantine Avenue.
 1917. M'Ilroy, R. J., 55 Ava Avenue.
 1935. M'Intyre, Miss Margaret, 104 Eglantine Avenue.
 1914. M'Kay, Miss E. W., B.Sc., Ardbana Terrace, Coleraine.
 1937. M'Keown, Miss Kathleen E., 22 Malone Road.
 1906. M'Kinney, Miss M. A. C., Sentry Hill, Carnmoney.
 1933. M'Kisack, A. M., 9 Mount Pleasant.
 1937. M'Kisack, J. H., 1972 West 35th Avenue, Vancouver, B.C.
 1922. M'Kisack, Miss M. K., 9 Mount Pleasant.
 1932. M'Knight, Miss E., 73 Marlborough Park South.
 1922. M'Knight, Wm. J., 73 Marlborough Park South.
 1917. M'Meekin, A., J.P., Cogry House, Doagh.
 1912. M'Meekin, Miss A. M., B.L., Sunnyside, Carnmoney.
 1932. M'Meekin, H. S., Jun., 20 Innisfayle Road.
 1937. M'Namara, Robert, Railway Street, Ballynahinch.
 1935. M'Neill, R. Norman, LL.B., Barrister-at-Law, 56 Wellington Park.
 1937. M'Neilly, Norman, B.A., 58 Bangor Road, Newtownards.
 1901. MacRae, Kenneth, 829 Lisburn Road.
 1934. M'Robert, Miss Jean, Knock-na-Gar, Greenisland.
1930. Napier, Miss, Bungalow Hostels, Stranmillis.
 1926. Neill, Miss M., Rhanbuoy Park, Carrickfergus.
 1937. Neill, S., 3 Church Street East.
 1936. Nelson, Stewart A., P. H. Department, City Hall.
 1933. Nicholson, Miss Maude Steel, Bressenden, Biddenden, Kent.
 1930. Noble, Miss M., 378 Upper Newtownards Road.
1935. O'Neill, Edward E., B.A., 30 Cromwell Road.
 1937. Orr, Brian, 33 Ardenlee Avenue.
 1937. Orr, Miss Jessie, M'K., 49 Donegall Place.
 1898. Orr, James, M.B.O.U., 64 Great Victoria Street.
1929. Patrick, J., 76 Shandon Park.
 1933. Peacock, Mrs. Emma H., Madison House, Cavehill Road.
 1931. Pears, John B., Woodlands, Holywood.
 1931. Plenderleith, Miss C., Loughnagar, Greenisland.
 1930. Prenter, J. D., Le Nid, Ormiston Crescent.
 1936. Press, F. E. V., 67 Marlborough Park North.
 1936. Price, Miss Mina, 14 Marlborough Park North.
 1922. Pringle, A., 12 Springdale Gardens.
1937. Ranson, Miss Olive, Ivydene, Mullaghmore Park, Greenisland.
 1916. Rea, Miss L. C., Salem House, Sydenham.
 1907. Rea, Miss M. W., M.Sc., Salem House, Sydenham.
 1937. Reid, H. F. M'Cune, M.A., Mount Royal, Ballygomartin Road.

1937. Reid, Mrs. Kathleen, Mount Royal, Ballygomartin Road.
 1919. Reilly, George C., 229 Cregagh Road.
 1933. Reilly, Mrs. G. C., 229 Cregagh Road.
 1926. Richardson, J. S., Woodhouse, Bessbrook.
 1921. Robinson, Miss L., 10 Kingsmere Avenue.
 1921. Robinson, W. R., 58 Ravenhill Park.
 1934. Rodgers, Miss May, Inisfallen, Downshire Road.
 1936. Rodwell, E. G., 124 Somerton Road.
 1934. Rowan, Surg.-Cap. John C., R.N. (retd.), 13 Eglantine Gdns.
 1922. Ruddell, Miss B., Thornleigh, Whitehead.
 1927. Rutherford, E. D., M.B., Ch.D., Woodlawn, Cherryvalley.
 1935. Rutherford, Mrs. I. N., Main Street, Larne.
1913. Savage, W. E. J., 8 Lincoln Avenue.
 1934. Sayers, Miss E., 61 Clonlee Drive.
 1917. Sayers, Miss W. J., B.A., Bartragh, Cherryvalley Park.
 1920. Sayers, Miss J. B., Bartragh, Cherryvalley Park.
 1924. Sayers, Miss M., 61 Clonlee Drive.
 1937. Sayers, Miss S., B.A., Sunbrae, Knockbreda Road.
 1936. Scott, Miss E. M., 48 Harberton Park.
 1936. Scott, Miss Helen, 187 Cavehill Road.
 1932. Scott, Miss J. E., Grasmere, Knockvale Park.
 1934. Scott, Robert, Grove Lodge, Seagoe, Portadown.
 1932. Sefton, A. Burton, St. Aubyn's, Deramore Drive.
 1921. Sefton, Thomas W., St. Aubyn's, Deramore Drive.
 1931. Shanks, E., 3 Galwally Park.
 1930. Shaw, Miss A. E., 58 Westland Road.
 1926. Shaw, Miss M. E., 58 Westland Road.
 1921. Shiels, Edward, Summer Hill, Bangor.
 1905. Shiels, Rev. Fr. J. F., P.P., Carrickmannon, Ballygowan.
 1921. Shortt, James, Wilmount, Lisburn.
 1935. Simpson, Miss E. C., 12 Ashley Avenue.
 1921. Sinclair, Robert, 48 Waring Street.
 1936. Sinton, John A., 1 The Crescent, Holywood.
 1934. Skillen, W. G. R., 25 Stranmillis Gardens.
 1920. Small, Professor J., D.Sc., Queen's University.
 1924. Smyth, John, M.A., Donard, Cregagh.
 1934. Snugg, J. C., 53 Rugby Road.
 1933. Speer, Miss Frances J., The Hostel, Howard Street.
 1927. Standfield, Miss Henrietta, 31 Virginia Street.
 1910. Stelfox, Mrs. A. W., B.Sc., A.R.C.Sc.I., 14 Clareville Road, Rathgar, Dublin.
1911. Stendall, J. A. S., M.R.I.A., 42 North Parade.
 1923. Stendall, Mrs., 42 North Parade.
 1904. Stephens, Capt. J. Kyle, J.P., 13 Donegall Square North.
 1934. Sterling, Miss A. F., Green Lawns, Kensington Gardens.
 1934. Sterling, Miss M. D., Green Lawns, Kensington Gardens.
 1923. Stewart, Albert K., 14 Mount Eden Park.
 1933. Stewart, Jack H., Dufferin Place, Killyleagh.
 1932. Stewart, Miss Marion, Pinetree House, Hillsborough.
 1894. Stewart, W. J., M.P., 105 Baker Street, London, W.1.
 1929. Storey, Fred., Maommar, Cultra.
 1936. Straight, Miss S., c/o Mrs. E. H. Peacock, Madison House, Cavehill Road.
1937. Strain, Miss M. G., B.A., Legmore Lodge, Dunmurry.
 1924. Swan, H. P., P.C., Ardelan, Buncrana.
 1937. Swan, Mrs. W. Marshall, 1 University Square,

1922. Sweeney, William, 105 Cliftonville Road.
 1934. Sweeney, Miss Anna E., 187 Cliftonville Road.
 1937. Syre, Miss Lily G., 236 Cliftonville Road.
1936. Tate, Miss Mabel A., Linda Geans, Jordanstown.
 1936. Taylor, Miss Anna E., 461 Upper Newtownards Road.
 1922. Taylor, Frank, St. John's, Marino.
 1936. Taylor, J. Childs, B.Sc., 22 Ward Avenue, Bangor.
 1930. Thompson, Alex., Rose Cottage, Craigavad.
 1926. Thompson, John D., 110-111 Scottish Provident Buildings.
 1926. Thompson, Mrs. J. D., Northdene, North Road.
 1932. Thompson, Samuel D., Tir-na-n-og, Helen's Bay.
 1932. Tomb, John J., Bellaghy P.E.S., Killagan P.O.
 1925. Toney, W. T., Granuaile, Greenisland.
 1930. Tripp, Miss A. G., 20 College Green.
 1925. Turner, Edmund, A.R.C.Sc.I., 3 Sandhill Gardens, Neill's Hill.
 1921. Turner, S., Junr., Ballyskeagh, Barnett's Road.
 1932. Turtle, L. J., 88 Belmont Road.
1936. Vance, Miss Dorothy J. C. A., Avonmore, Maxwell Road, Bangor.
1936. Walker, Miss Annie, 36 Indiana Avenue.
 1928. Wall, John J., J.P., Glenarm.
 1936. Wallace, Miss Anna M., 26 Malone Avenue.
 1919. Warnock, Miss, M.A., 13 Cromwell Road.
 1935. Warnock, Peter, 9 Glisson Road, Cambridge.
 1936. Wasson, Miss Lucy, 41 Knockbreda Road.
 1933. Waterhouse, Professor Gilbert, Litt.D., F.R.G.S., 92 Malone Road.
 1933. Waterhouse, Mrs., Gilbert, M.A., 92 Malone Road.
 1937. Weatherup, Mrs. A. M., Bryghte Holme, Carrickfergus.
 1932. Weatherup, W. J., B.Sc., 98 Malone Avenue.
 1935. Weatherup, Mrs. N., 98 Malone Avenue.
 1925. Webb, Miss E. M., Rath House, Shandon Park.
 1924. Wegg, George R., Glynn Villas, Larne.
 1934. Weir, Miss Annie, Pickie Rock House, Bangor.
 1927. Weir, Miss M. K., Bangor Collegiate School, Bangor.
 1936. Weston, Mrs. M. Elaine, The Wooden House, Annalong.
 1924. Weyms, David, The Moorings, Dunmurry.
 1933. Whelan, C. Blake, M.A., B.L., 19 Lismoyne Park.
 1933. Wherry, Miss Irene, 799 Lisburn Road.
 1934. White, James H., 7 Linden Gardens.
 1927. White, Miss Jeanne M., M.Sc., 18 Carleton Street, Portadown.
 1927. Whyte, Mrs., 10 Orient Gardens.
 1928. Whyte, Miss, 10 Orient Gardens.
 1929. Wightman, James A., 52 Hanover Street, Portadown.
 1927. Wilkinson, Miss D. H., 25 Ashley Avenue.
 1917. Wilkinson, James, J.P., Carrowkeel, Dundonald.
 1923. Willis, Miss A., 184 Malone Road.
 1925. Wilson, Miss A., 15 Harberton Drive.
 1901. Wilson, Prof. Gregg, Transy, Beechlands, Malone Road.
 1904. Wilson, Mrs. Gregg, Transy, Beechlands, Malone Road.
 1923. Woodburn, Rev. J. B., M.A., D.D., 9 Harberton Avenue.
 1901. Workman, W. H., Lismore, Windsor Avenue.

JUNIOR DIVISION.

1937. Archer, William, 16 Harberton Park.
1931. Bairnsfather, Evelyn, 8 Eileen Gardens, Windsor Park.
 1936. Barry, Brian, 19 Kirkliston Drive.
 1936. Beck, May, 40 Ravenhill Park.
 1937. Beck, Neil, 40 Ravenhill Park.
 1934. Black, Andrew, 12 Seabourne Parade.
 1935. Blackburn, Phyllis, 16 Duncairn Gardens.
 1934. Boyd, Christopher, 121 Wellesley Avenue.
 1931. Bradley, Dymphna, 6 Thorndale Avenue.
 1931. Bradley, Nora, 6 Thorndale Avenue.
 1937. Breach, J. F., Knockagh, Greenisland.
1936. Charlesworth, Marian, 19 Rugby Road
 1935. Clark, Alan, 35 Martinez Avenue.
 1931. Clarke, Eleanor, 42 Railway Street, Lisburn.
 1934. Clarke, Owen, 42 Railway Street, Lisburn.
 1927. Cleland, Martyn, 13 Eglantine Gardens.
 1935. Connelly, Alma, Conalan, Church Road, Newtownbreda.
 1937. Constable, Hazel Margaret May, 2 Osborne Gardens.
 1937. Crawford, B., 69 Osborne Park.
1927. Deans, Phyllis, 141 Ormeau Road.
 1933. Duffin, Brice, 3 Deramore Park.
 1937. Duffin, Dorothy, 3 Deramore Park.
1937. Emerson, Daphne, 11 Rugby Road.
1928. Faris, Kathleen, Rosebank, Marlborough Park.
 1932. Ferguson, Kathleen, 102 Seaclyffe Road, Bangor.
 1936. Ferguson, Suzanne, Glenshesk, Glen Road.
 1933. Finlay, Frazer, 62 Castlereagh Street.
 1936. Foster, Paul, 94 West Circular Road.
 1931. Fricker, Harold, No. 3 Cottage, Stranmillis Training College.
1937. Gallagher, Eve, 34 Malone Avenue.
 1934. Garrett, Ethel, Hillview, Barnett's Road, Knock.
 1935. Garrett, Maureen, 19 Castlehill Road.
 1935. Getty, Patrick, The Anchorage, Carrickfergus.
 1935. Glen, Joan, 45 Adelaide Park.
 1935. Glen, Margaret, 45 Adelaide Park.
1932. Gordon, Agnes, 130 Eglantine Avenue.
 1932. Gordon, Billy, 130 Eglantine Avenue.
 1932. Gordon, John, 130 Eglantine Avenue.
 1935. Gotto, Robert V., 20 Adelaide Park.
 1928. Gregg, R. Noel, 8 Wheatfield Gardens.
 1931. Gribbon, Derwent, 27 Glandore Gardens.
 1935. Guiler, Roy, 41 Rosetta Park.
1933. Hanna, Joan, Mayfield, Dunmurry.
 1933. Hassan, Suzanne, 64 Rugby Road.
 1937. Heslip, J., Wolfhill Lodge, Ligoniel.
 1933. Hislop, Nan, 35 Ulsterville Avenue.
 1926. Holland, Susan, Fairy Hill, Osborne Gardens.

1937. Jamison, David, Inishowen, Newtownards.
1932. Johnston, John, 105 Ardenlee Avenue.
1937. Johnston, J. H., 79 Wellington Place.
1933. Johnston, Louis, 105 Ardenlee Avenue.
1933. Johnstone, Helen, 134 Somerton Road.
1930. Kernaghan, Sam, 46 Salisbury Avenue.
1935. Kinkad, Gloria, 7 Ashdene Drive, Glandore Avenue.
1936. Lauder, Dorothy, 76 Haypark Avenue.
1937. Lawson, Dorothy, 189 Cavehill Road.
1931. Lord, Eileen, 18 Woodvale Gardens.
1930. Lord, Sheila, 18 Woodvale Gardens.
1936. Macmahon, Patricia, Earlswood Road.
1930. Martin, Hazel, 22 Ophir Gardens.
1935. Mason, Cyril, 9 North Parade.
1937. Maultsaid, Maureen, 11 Sandhurst Drive.
1927. May, Ernest Langton, The Sheiling, Sutton, Co. Dublin.
1937. M'Connell, Joan, 12 Castlehill Road.
1933. M'Cullagh, Murray, 28 Wyndham Street.
1937. M'Ilrath, Sheelagh Beatrice, 222 Stranmillis Road.
1937. M'Robert, J. C., Rademon, Crossgar.
1935. M'Veigh, Jean, 4 Victoria Gardens, Cavehill Road.
1937. Morrice, Joan, 16 Ulsterville Avenue.
1936. Nelson, Audrey, 296 Donegall Road.
1936. Nelson, Eleanor, 11 Stranmillis Gardens.
1930. Nelson, Edna, 296 Donegall Road.
1929. Nodder, C. D., Campbell College.
1932. Orr, Nan, 136 Mountcollyer Street.
1937. Pedlow, Doreen, 7 Eglantine Gardens.
1937. Petticrew, Jean, 59 Kansas Avenue.
1937. Rainey, Esther Joyce, 10 Harberton Drive.
1937. Rankin, Denis, 11 Hopefield Avenue.
1937. Rankin, Neil, 11 Hopefield Avenue.
1937. Reid, Betty, 1 Glenbank, Ballysillan.
1937. Shaw, Clement, 5 Earlswood Road.
1931. Sloane, Joan, 59 Ponsonby Avenue.
1930. Stendall, Leslie, 42 North Parade.
1932. Stewart, John, Inglemede, Ardenlee Avenue.
1932. Stewart, Sarah, Inglemede, Ardenlee Avenue.
1934. Teuton, Brian, 19 Ravenhill Park Gardens.
1937. Toner, William, Blenheim Drive, Castlereagh Road.
1930. Tweedie, Peggy, 9 Stranmillis Gardens.
1937. Vaughan, Kathleen Maud, 34 College Gardens.
1931. Ward, Sybil, Oakmount, Drumbeg, Dunmurry.
1937. Weatherup, Michael, 98 Malone Avenue.
1937. Williamson, Sheila, 20 Stranmillis Road.
1937. Wright, Dennis, 76 Ravenhill Park.
1935. Wright, Kathleen, 1 Richmond Square, Cavehill Road.



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PROCEEDINGS ... AND ... ANNUAL REPORTS



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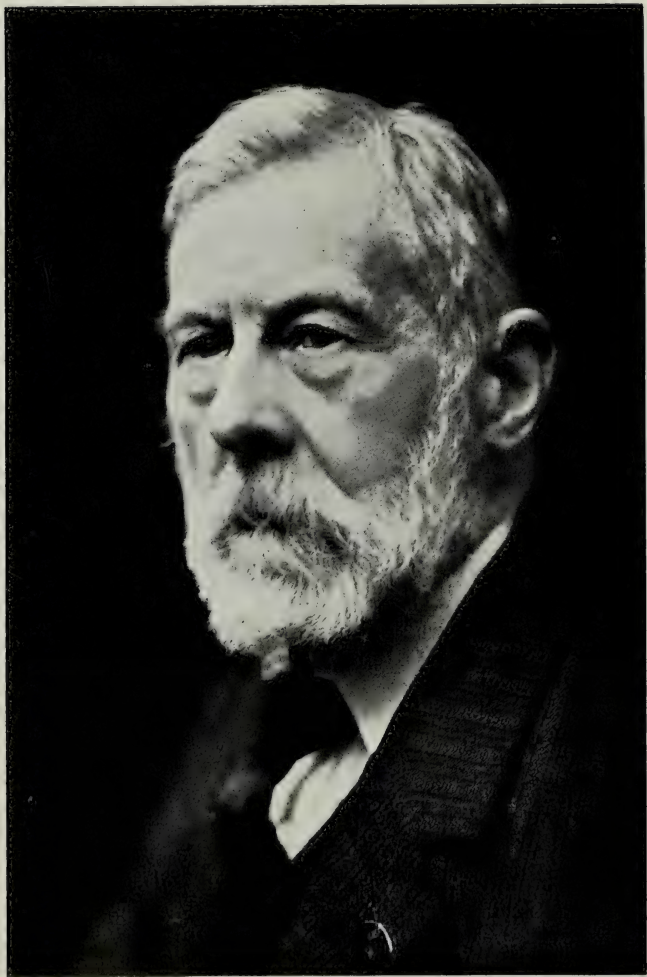
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R. J. Welch, M.Sc., M.R.I.A.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1937
(SEVENTY-FOURTH YEAR)

SERIES II.
VOLUME IX.



PART IX.
1936-37.

EDITOR:
A. M^r. CLELAND.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-FOURTH YEAR, 1936-1937.

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J. J. HARTLEY, M.Sc.

Hon. Secretaries Zoological Section :

J. S. LOUGHRIDGE, B.Sc., M.D., F.R.C.S.
R. MacDONALD.

Hon. Secretaries Archaeological Section :

A. ALBERT CAMPBELL, F.R.S.A.I.
R. S. LEPPER, M.A., F.R.Hist. Soc.

Hon. Secretary Survey of Antiquities Committee :

MISS MARY GAFFIKIN.

Hon. Secretaries Junior Division :

Mrs. C. R. NODDER.
MISS E. E. BARRY.

Members of Committee :

Retire 1937.

Emeritus Prof. GREGG WILSON, O.B.E., M.A., D.Sc.,
M.R.I.A.

R. H. COMMON, B.Sc., M.AGR.
A. M. M'KISACK.

Retire 1938.

C. R. NODDER, M.A.
JAMES ORR, M.B.O.U.
WM. SWEENEY.

Retire 1939.

MISS KATHLEEN BOURKE, B.Sc.
Capt. C. D. CHASE, M.C., M.A.
A. M'I. CLELAND.

Honorary Secretaries :

JOSEPH SKILLEN, }
W. G. R. SKILLEN, } 25 Stranmillis Gardens

PROCEEDINGS.

SUMMER SESSION.

BENEVENAGH.

Date—9th May, 1936. Conductor—Miss W. J. Sayers. Number present, 40.

On arrival at Bellarena station the members first visited the ancient churchyard of Tamlaght. S. Henry told of St. Columba and St. Aidan, whose graves were nearby, and of the blind harper of Magilligan, O'Hempsey or Hampsan, also buried at Tamlaght.

Passing by St. Aidan's holy well, the party made their way, through hazel woods carpeted with wood anemones and bluebells, to the base of the Benevenagh cliffs in search of Alpine plants, and were rewarded by finding many pink cushions of *Silene acaulis*, standing out in strong contrast to their background of dark rock.

After an *al fresco* lunch, the President (A. H. Davison) briefly touched on the geological features of the neighbourhood, with particular reference to the Benevenagh cliffs.

GIANT'S FOOT, WHITEROCK ROAD.

Date—12th May, 1936. Conductor—J. J. Hartley.

This excursion was made to study the exposures of Triassic Sandstone behind Beechmount; the limestone quarries at Whiterock; and the flint factory on the slopes of Black Mountain discovered by our late member, Robert Bell, and described in the Club's Proceedings, Vol. VIII, 1922-23.

(No report.)

CUSHENDALL AND CUSHENDUN.

Date—22nd till 24th May, 1936. Conductors—Dr. R. Ll. Praeger and J. Skillen. Number present, 75.

This was a combined excursion of the Belfast, Londonderry and Route Field Clubs.

On arrival at Cushendall the members were met by contingents from the affiliated Clubs, Londonderry having the honour of providing the largest number, over twenty in

all. After tea various excursions in the neighbourhood of the town were made on foot. The botanists and the geologists searched the banks of the Dall and the seashore, while the archaeologists visited Red Bay Castle and the hamlet of Waterfoot. Next morning all were early astir, and the way was taken up Glenann, stopping to inspect "Ossian's Grave," where cameras were in evidence photographing this bronze age cairn.

The next halt was at the cairns of Hugh M'Phelim O'Neill and his servant, who fell in the battle of Aura between the M'Quillans and the MacDonnells in 1565, which settled the lordship of the Route in favour of the latter clan. The top of the mountain having been attained a lovely drive down into the valley of the Bush River followed, both sides of the road showing a gorgeous display of gorse in full bloom. Lisanoure, the objective, was then reached, when the party scattered through the grounds of this fine demesne. At the old castle the Hon. Secretary gave an account of its interesting history.

At Lisanoure the botanists, under Dr. Praeger and Miss W. J. Sayers, B.A., made a search of the grounds to confirm the old records of plants and perhaps find new records for the forthcoming new edition of "The Flora of North-East Ireland," of which the former is the editor. The old ruinous pre-Reformation church standing in the demesne, as well as the handsome new church, were visited.

Arriving back in Cushendall the company sat down to dinner, after which Dr. Praeger and Miss Sayers gave a most interesting talk on the wild flowers collected during the day. This was followed by a paper contributed by Mr. H. A. Boyd on Lord Macartney.

Next morning being Sunday the forenoon was free, but some members visited the various interesting places in the neighbourhood, including Layde old church. In the old graveyard, which is in a neglected condition, moulders the dust of many of the princely race of the MacDonnells. The ruined church is in danger of complete destruction from the mass of disintegrating ivy which clothes its walls and from the chance-grown trees, which are in vigorous growth even from out the very walls.

The Ancient Monuments Committee might well consider some preservation work on this ancient church of St. Kieran's.

In the afternoon the whole party visited Cushendun and Shane O'Neill's cairn, which is said to be the place where he was killed by the MacDonnells in 1567.

The last stop was at the caves, where the President (Mr. A. H. Davison, F.R.S.A.I.) gave a talk on the curious conglomerates there. Returning to the hotel, the members shortly afterwards left for home after a very enjoyable and instructive week-end.

CARNMONEY QUARRY AND HILL.

Date—2nd June, 1936. Conductor—Prof. J. K. Charlesworth.

This excursion was made for the purpose of studying the volcanic neck at Carnmoney, with its radiatory columns and vesicles containing "hullite." The chalk and basalt were also examined.

(No report.)

GLYNN AND GLENOE.

Date—18th June, 1936. Conductors—Miss K. M. Bourke and A. A. Campbell. Number present, 40.

On arrival at Glynn the members first visited the beautiful grounds of Glynn House, under the conductorship of the owner, Mrs. Johnston.

The next stop was at the old church of Glynn, where the rector of the parish (Rev. R. Kilpatrick) gave a brief account of its history, mentioning that the original church was said to have been founded by St. Patrick.

The walk up the Glen, in the brilliant sunshine, was greatly enjoyed, the botanists keeping a keen lookout for certain rare plants found here by the Club in 1875.

The quaint little village of Glenoe was reached shortly before five o'clock, when the party visited the nearby waterfall with its four cascades and the beautifully wooded neighbouring ravine through which the water tumbles.

The geologists spent some time in the quarries, the chalk of which is remarkably pure, containing 99 per cent. of carbonate of lime.

SOUTH ARMAGH (THE FEWS).

Date—27th June, 1936. Conductors—J. Skillen and T. G. F. Paterson.

The members left the Old Museum on the morning of a glorious day. The district traversed is one of the most

fertile and historic in the North, and the views obtained during the progress of the excursion were most extensive, as far south as the Carlingford Mountains in Louth, and as far north as the Sperrins in Tyrone.

Passing through Portadown the first stop was at Marlacoo Lake, a beautiful sheet of water set in sylvan surroundings. In this lake are the remains of O'Neill's crannoge. This lake dwelling was occupied in 1566 when the lord-deputy, Sir Henry Sydney, made an unsuccessful attempt to capture it. State papers contain letters written from it in 1595-96 by the Earl of Tyrone. It was again in use in 1607, garrisoned by Sir Toby Caulfield, founder of the properties in Armagh and Tyrone, after which it seems to have fallen into decay, hastened by an Act passed forbidding the building or use of crannoges.

The next stop was at Mullabrack church, which was a Culdee foundation, and the Prior of Armagh was rector of the parish. The date of the foundation is unknown, but the parish is mentioned in a papal Taxation of 1291. Lists of rectors are extant from 779. The church is modern, but contains a number of interesting monuments to the Hamilton and Acheson families, one to the memory of Sir Arthur Acheson (Dean Swift's friend) is surmounted by a bust by Nollekens, the celebrated sculptor. Some of these monuments were purposely defaced during the wars of 1641 and the church was also greatly damaged. There is also a monument to Lieut. George Lambart, V.C., won in the Indian frontier wars, and one of the earliest holders of the coveted cross. Another holder of the V.C. (Lord Charles Beresford) spent a happy boyhood there, his father being rector of the parish.

Passing on to Gosford Castle demesne, on the edge of Markethill, Dean Swift's haunts within the demesne were visited—his "Chair," his "Walk," his "Well," also Drapier's Hill, where he had intended to erect his house. The modern castle was also inspected, built by the second Earl of Gosford and completed in 1840. It is the largest castle in Northern Ireland, took twenty years to build, and sad to say is now unoccupied.

Proceeding onward along a road, at a comparatively high elevation, Beach Bank was reached at the summit of the hill. Here lunch was partaken of in glorious sunshine and with magnificent views stretching out on every hand, one of the finest inland panoramas in the North.

The famous places all around were discussed, including the celebrated "barracks," one built on each side of the town of Newtownhamilton, to hold the Tories of the seventeenth century in check, the most celebrated of whom was the rapparee Redmond O'Hanlon. The coach road from Dublin to Armagh ran along here and offered a rich field for exploitation by these highwaymen. Close to Newtownhamilton is Shee Fina, the palace of Lir, ever remembered by his "children," immortalised by Moore in his melody: "Silent, O Moyle, be the roar of thy waters."

Lunch having been taken, the road was resumed through Newtownhamilton (the streets of which were almost impassable with animals, vehicles, &c., it being the half-yearly fair), and shortly after the Dorsey was reached. This magnificent earthwork—the largest, most important, and most impressive enclosed entrenchment in Ireland—is assumed to have been erected at some date previous to the expulsion of the Ultonians from Emain Macha in 332 A.D. On the top of the entrenchment an interesting discussion took place as to its origin and use; was it or was it not part of the great rampart running across the country from east to west known as "The Black Pig's Dyke," or was it the great gateway of the fortified territory of Emain Macha?

From Dorsey the party proceeded via Cullyhanna by a very picturesque countryside to Aughnagurgan to inspect a dolmen and two other dismantled graves of the Bronze Age.

Reaching Dundrum, there was visited a double ringed fort, one of a group of three, afterwards proceeding to Armagh through the very pretty Tassagh valley, having only time to look at the Culdee graveyard there. Just before reaching the primatial city a stop was made at the famous Armagh quarries, famous in science for their fossil fish remains. Here the President (Mr. A. H. Davison, F.R.S.A.I.) gave a talk on the geology of this district.

Armagh having been reached, an excellent tea was enjoyed, and afterwards an adjournment was made to the County Museum, where a meeting of the Club was held, a Junior member elected, and the warm thanks of the party conveyed to Mr. Paterson by the President for his services as conductor during the day. After the exhibits in the museum had been examined and the building, with its classic portico, admired a start was made for home.

During the day Miss W. J. Sayers, B.A., and other botanists in the party did good work in verifying records for the new edition of the "Flora of North-East Ireland."

EDENDERRY AND GIANT'S RING.

Date—30th June, 1936. Conductor—J. A. S. Stendall.

On this excursion, after examining the Giant's Ring, the members searched for plants in connection with the forthcoming new edition of the "Flora of N.E. Ireland."
(No report.)

DONEGORE AND RATHMORE.

Date—4th July, 1936. Conductors—The President (A. H. Davison) and J. Skillen.

This excursion was an Archaeological one, and during its course the following places and objects were visited:—Donegore churchyard, the burial place of Sir Samuel Ferguson, the Ulster poet and antiquary; Donegore moat; the stronghold of Rathmore; and the sepulchral cairn of Browndod.

Tardree was also visited, where the President (A. H. Davison) gave an interesting address on the geology of the district.

SHREWSBURY AND NEIGHBOURHOOD.

Date—10th till 14th July, 1936. Conductor—A. M'I. Cleland.
Number present, 24.

On Friday evening, 10th July, 19 Members left Belfast for Shrewsbury via Liverpool and Birkenhead, being met at Shrewsbury on Saturday morning by the conductor, who had a bus waiting to convey them to the Crown Hotel, headquarters during the excursion. By 10 a.m. all were seated in front of a very welcome breakfast, being joined by 5 other Members who had gone on in advance, thus making the party a compact body of twenty-four.

By 11 a.m. all had assembled in front of the statue of Charles Darwin, born in Shrewsbury in 1809, erected in the grounds of the Municipal Free Library and Museum. Here they were greeted by the Local Conductor, Mr. H. E. Forrest, F.L.S., who at once took charge of them.

Mr. Forrest led the party to the department of the Museum entirely devoted to objects found during various excavations on the site of the ancient Romano-British town of Uriconium, in one corner of which the modern village of Wroxeter now stands. He directed special attention to the

inscribed tablet formerly erected over the entrance to the Forum, dated 130 A.D.; a solid silver mirror, 12 inches in diameter, the back beautifully chased; two bronze and inscribed military diplomas, one of them the most perfect example that has so far been found in Great Britain; and lastly some remarkable piles of dishes in Samian ware, perfect in every detail, taken from the ruins of what had evidently been a china-merchant's shop.

From the Museum the Members moved to the Castle, now the property of the Shrewsbury Corporation, who had very kindly given free admission to the excursion party. Here, in the Council Chamber, Mr. Forrest outlined the history of the building and the brave part it took in the Civil Wars, only being captured by treachery on Saturday, 22nd February, 1645 A.D.

By 12.30 o'clock the Members had re-assembled at the Crown Hotel, mounted the bus in waiting, and drove straight away to Battlefield Church, 3 miles north of Shrewsbury, erected about the year 1408, as a memorial to those who fell at the battle of Shrewsbury on July 21st, 1403.

The next halt was at Grinshill, 4 miles farther N., where a heavy shower was encountered. In spite of the rain several Members followed Mr. Forrest along a very muddy and leaf strewn road to a quarry in Triassic sandstone for which Grinshill is so famous, numerous fine buildings in the neighbourhood having been constructed in this material. The special feature the Members noted here was a fine dyke of dolerite, about 2 feet wide, which can be traced for many miles across country.

Clive Hill was the next stopping place, one mile N.W. of Grinshill and 400 feet high. The Members climbed to the top of the hill along a rough lane cut in bare sandstone rock. The rain had now ceased, and a cheerful stream of clear water was merrily coursing down the lane, across which the Members skipped from side to side. Here is to be seen the most remarkable example of glacial erosion in the Midlands. The entire top of the hill has been planed down by the ice-sheet, 1,800 feet thick, which passed over it from N.N.W. to S.S.E.

The bus next drew up at Moreton Corbet Castle, 3 miles on in a S.E. direction, where Mr. Forrest gave an account of the history of the building. Here are the remains of two mansions, the first built in 1573; the second begun (but never finished) in 1606. This house was fortified for the

King during the Civil Wars, but was taken by the Parliamentarians in September, 1644, and burnt by them in the following March.

High Ercall Hall was the next objective, 5 miles from Moreton Corbet in a S.E. direction. Here all alighted and had another talk from Mr. Forrest. The Hall was built in 1608, was garrisoned for the King, sustained a long siege, and did not surrender till 28th March, 1646, being the last fortress in Shropshire to hold out for the King, except Ludlow and Bridgnorth.

On again, the bus next drew up at the entrance to Haughmond Abbey (4 miles from High Ercall in a S.W. direction), which building was thoroughly examined by all the party. Haughmond Abbey, founded for Augustinian Canons about 1135, is set amongst most sylvan surroundings at the base of Haughmond Hill.

At 5 p.m. the bus pulled up for tea at the Corbet Arms Hotel, Uffington, 2 miles from Haughmond in a S. direction. Tea was served at once, the Members being ravenously hungry. During the course of the meal the Vicar of the Parish (Rev. Earnest R. Sequeira) joined the party and proved a most genial and pleasant guest.

The weather had by now much improved: no more rain, great visibility, and a short burst of sunshine at about 7 p.m., so that the drive from Uffington to Uriconium, the next and last objective (4 miles on and in a S.E. direction) was a great delight.

At Uriconium the Members were taken in charge by the courteous Keeper (Mr. F. Jackson), who thoroughly explained all the very interesting features to be seen here.

Uriconium was founded by the Romans about 70 A.D., on the banks of the Severn at a point commanding the entrance to Mid-Wales, was occupied for some 300 years, and then disappeared from human ken till about the year 1859, on which date explorations and excavations were begun and have been carried on at intervals since then. Many of the ruins brought to light have been left open for inspection, the latest addition being the fine outer wall and column bases of the Forum.

The Crown Hotel, Shrewsbury (5 miles from Uriconium in a N.W. direction), was reached at 7.30 p.m., promptly on time.

The day's run had covered 32 miles with 8 halts.

On Sunday, 12th July, the weather conditions were very bad indeed; almost continuous rain, with few dry intervals. Fortunately there was an almost total absence of wind.

During the morning the conductor took a party of nine Members to Church Stretton by bus (13 miles from Shrewsbury) to see Carding Mill Valley, but they only got as far as the Tea Houses, where hot tea and biscuits were very welcome. Despite the rain, the Valley looked exceedingly beautiful, the air being remarkably clear and the roads very clean.

Another party of four went out by taxi hoping to reach the Stiperstones. This they found to be quite impossible. They managed to explore an interesting quarry on the way, and brought back samples of barytes, galena and calcite.

In the afternoon four brave ladies went by bus to Ludlow, saw the Castle, and had tea at the famous half-timbered "Feathers Hotel." They returned somewhat damp, hungry and very jolly.

The weather on Monday, 13th July, was on its very best behaviour: blue sky; white clouds; a strong N.W. breeze; great visibility; and landscapes alternately in light and shade.

On this excursion our numbers were augmented by seven Members of the Caradoc and Severn Valley Field Club, thus bringing our total up to 31 in all.

Leaving the Crown Hotel promptly at 9 a.m. the first halt was at Atcham Church, $3\frac{1}{2}$ miles from Shrewsbury in a S.E. direction. This church is of Saxon foundation, beautifully situated on the left bank of the Severn, and close to the two bridges which cross the river here: the old one, very graceful and built in 1768; and the modern one, built quite recently of reinforced concrete, and not by any means so graceful in outline.

The next halt was at Eaton Constantine, 4 miles in a S.E. direction, to view the picturesque half-timbered home of the family of Baxter, where Richard Baxter the Divine came to live when ten years old. The geologists also inspected here a group of interesting erratics in dolerite.

Mounting the bus again the next stop was at the Landslip, 4 miles E., the road rising high above the left bank of the Severn and giving excellent views of the meanderings of the river as it winds its way through the flats, the remnants of the ancient "Glacial Lake Lapworth."

Moving on now to Ironbridge, $1\frac{1}{2}$ miles E., a prolonged halt was made to enable the Members to thoroughly examine the Cast-iron Bridge spanning the Severn here, erected in 1779, the first bridge of cast-iron ever built. It is now a National Monument and is closed to vehicular traffic.

Mounting the bus once more the Members went back up the river for two miles W., crossed it at Buildwas and pulled up at the very fine ruins of Buildwas Abbey. Here the Custodian took charge of the party and guided the Members through the various buildings. Buildwas, a Cistercian abbey, was founded in 1135, and is now under the control of the Board of Works, and is therefore kept in an excellent condition.

The next halt was at Much Wenlock Abbey, 3 miles S.W., the route followed leading up the beautiful sylvan Farley Dale, narrow and densely wooded.

Wenlock Abbey was originally a nunnery founded in the 7th century and destroyed by the Danes about 896. Restored in the time of Canute it was again destroyed after the Conquest, being eventually founded as a Cluniac Priory in 1080. It occupies an ideal situation, and its ruins being still in private hands are embellished with an amount of ivy and other creepers that would not be tolerated for a moment by a Board of Works.

As Wenlock Abbey and Wenlock Town have been special studies of Mr. Forrest the Members had full advantage of his abundant store of antiquarian and architectural knowledge.

The 15th century Prior's Lodge, converted into a private dwelling, was open to the Members through Mr. Forrest's influence. It is now being re-conditioned for a new occupant, and the Members were thus able to wander over all the beautiful building at their own sweet will.

From the Prior's Lodge the Members walked to the Guildhall, a half-timbered building resting on wooden columns. Two pillars near the entrance formed the old whipping-posts, and here also the movable stocks are preserved. Upstairs is a richly panelled room still used as the Council Chamber.

Mounting the bus again (and nearly carrying away a projecting sunshade, as a souvenir, as they wound through the tortuous streets of Wenlock), the Members next halt was at "Major's Leap" ($4\frac{1}{2}$ miles in a S.W. direction), a small

platform of bare Silurian limestone on the very lip of Wenlock Edge and commanding a splendid and most extensive view. From "Major's Leap," 867 feet high, one looks across the Severn and Dee plains, with the Wrekin on the right and in front Caer Caradoc and the Longmynd range of hills and so right into Mid-Wales.

Once more the whistle sounded, and the bus moved away down the eastern slope of Wenlock Edge to Shipton Hall ($4\frac{1}{2}$ miles S.), a most beautiful Tudor Manor house dating from 1589. The public are not usually admitted, but Mr. Forrest's influence had gained an entry. The proprietors, Mr. and Mrs. — Bishop, were waiting for us in the entrance hall, personally conducted us all over the interesting building and stood at the garden gate when our inspection was over and waited till the bus moved off amid much waving of hats and caps.

We were now an hour behind time, but nobody seemed to mind this, as we took up our route once again down the lovely Corve Dale to Stokesay Castle and Church, our next objectives ($10\frac{1}{2}$ miles S.W.). On reaching the Castle we found the Caretaker (Miss Dorothy Abram) looking rather anxious on account of our late arrival (5 p.m. instead of 4). Tea was all ready, laid out in the Banqueting Hall, and never did hungry pilgrims "fall to" with greater zest!

Stokesay Castle, or Manor House (dating from 1291), is uniquely interesting, being considered to be the oldest and best specimen of a fortified Manor House, as distinguished from a Castle, in England.

Once more the bus was mounted for our next and last objective, Dorrington (13 miles N.), where Mr. Forrest introduced us to a Glacial sand and gravel pit.

This inspection finished we made a quick run to the Crown Hotel, Shrewsbury (6 miles N.), and our belated dinner, which meal was attacked with the appetites of wolves!

Our run for the day was $56\frac{1}{2}$ miles with 10 halts.

After dinner an informal business meeting was held at which an enthusiastic vote of thanks, proposed by the President (A. H. Davison), and seconded by R. S. Lepper, was tendered to Mr. Forrest for all his kindness and generous help both on Saturday and Monday, and for his promise of guidance on the following day.

On Tuesday, 14th July, the weather treated us fairly well, for although there was an entire absence of sunshine we had no rain till 5 p.m., at which hour the Members were at headquarters again, preparing for dinner.

The day was devoted to seeing many of the most interesting buildings of Shrewsbury, being divided into a morning and afternoon Session, the Members adjourning at 1 p.m. to Morris' Café, Pride Hill, where lunch was served.

Starting from the Crown Hotel punctually at 10.30 a.m., under the welcome guidance of Mr. Forrest, the following are among some of the places visited:—Council House; Perche's Mansion; City Walls; St. Mary's Church; Jones the Lawyer's Mansion; Hall of the Drapers' Guild; Butcher Row; the Old Mint; the " Olde House; " Guild Hall; Wyle Cop; Abbey Church; English Bridge; Judges' Lodgings; St. Chad's Church, etc., etc.

The strong impression left on the minds of the Members, at the conclusion of their most interesting morning and afternoon tours through Old Shrewsbury, was that Mr. H. E. Forrest's remarks concerning the evolution and development of the construction of the various buildings visited; his knowledge of the details of how and why they were erected and the methods and tools used in wood carving and in moulding the many beautiful plaster ceilings observed: all show that he must be unsurpassed in Great Britain as an authority on those subjects.

The Belfast Naturalists' Field Club may indeed be congratulated on having such an efficient Local Guide during their Long Excursion of 1936.

At 7 p.m. those Members who were returning to Belfast (14 in number) were conveyed to the station by bus; journeying to Birkenhead (Woodside) by the 7.38 p.m. train in reserved compartments, getting an enthusiastic send-off from the remaining Members as the train pulled out. So ended the Long Excursion of 1936, which all agreed had been the most enjoyable and successful Excursion the Club had ever had.

SHAW'S BRIDGE, MILITOWN, PURDYSBURN GLEN.

Date—11th August, 1936. Conductor—Miss E. Barry.

A Botanical excursion in search of plants in connection with the new edition of the " Flora of N.E. Ireland."

(No report.)

PORTGLENONE DEMESNE.

Date—15th August, 1936. Conductor—J. Skillen.

A large party took advantage of this excursion, the Club's first visit to Portglenone Demesne, permission having been granted by the proprietor, Capt. R. A. Alexander, D.L.

Portglenone was reached after a pleasant drive down the valley of the Bann, with Lough Neagh and Lough Beg shining like plates of silver in the near distance, and in the farther distance the frowning tops of the County Derry mountains foreboding rain, which fortunately kept off.

At Portglenone Dr. J. B. Stewart and Mr. David G. Montgomery were in waiting to act as guides to the district.

Before proceeding to the demesne the party visited Dr. Stewart's house to inspect his collection of antiquities. These included the flint implements which he found under the diatomaceous clay at New Ferry. This site was discovered by Dr. Stewart, and was excavated last year by the Harvard (U.S.A.) University Commission, the results of whose work have been published in the proceedings of the Royal Irish Academy.

On arrival at the entrance to the demesne a large party of Route Club members were in waiting accompanied by their Honorary Secretary, Mr. Sam Henry, F.R.S.A. Proceeding into the demesne, the botanists got to work, Miss W. J. Sayers, B.A., at their head, with what results will be known later. The demesne grounds seem to be kept in splendid condition, detrimental to a good display of wild flowers. The walled flower garden was a delight to visit. On the bank of the river, which here encircles the property, and on the fosse of an old earthwork, Dr. Stewart gave a talk on some aspects of the history of the neighbourhood, for here was the very spot where King James's army under General Nugent crossed the Bann and drove the Williamite defenders back to Derry.

Mr. Sam Henry, in his usual informative style, also gave a talk, and it was interesting to hear from him that Brian O'Lynn, who "had no breeches to wear," was a real person, no less than the village constable of Portglenone.

Leaving this town, the way was taken to Dungledy Fort. On the road a stop was made to inspect the site of the crannoge where Brian Carragh O'Neill had his dwelling. This chieftain lived and figured largely in the troublous times of the second half of the sixteenth century, and was often

a thorn in the side of the governors of Queen Elizabeth. The lake is all now drained where the crannoge stood, but the site of the latter is marked by a group of trees.

Reaching Dungledy Fort the party ascended to the top, and were fortunate enough to have with them the daughter of the proprietor, who read a poem which she had composed about the fort. The fort is one of the most expansive in the North, built on a high elevation, as is usual with this class of structure, and with triple rings. The excavation of these rings is very deep, but unfortunately the imposing appearance of the whole rath, or dun, is masked by a deep undergrowth of whitethorn, blackthorn, and hazel.

Returning through Portglenone, where a stop was made to thank Dr. Stewart and his family and Mr. Montgomery for their help and kindness, the way was taken over Tully Hill and through Ahoghill to Ballymena.

At the latter town tea was served, and afterwards Harryville moat was visited, where the Honorary Secretary (Mr. J. Skillen) told something about the ancient remains in the neighbourhood of the flourishing town of Ballymena. The Norman motte and bailey at Harryville in this town is one of the best preserved in Ireland, due largely to the fact that the Adairs, the lords of the soil, had it under their care. He also told something of the insurgents of 1798, including Archer, who had perished at the moat.

Belfast was reached at a reasonable hour after a very enjoyable excursion.

COMBER ESTUARY.

Date—29th August, 1936. Conductors—C. R. Nodder and R. MacDonald.

The main object of this excursion was to observe the salt-marsh and sea-shore plants, of which the members obtained many specimens.

(No report.)

PORTSTEWART.

(Conference.)

Date—25th till 27th September, 1936. Conductor—J. Skillen.

Representatives of Northern and Southern Field Clubs attended the annual Field Club Conference in large numbers.

The Conference was held for the first time in Portstewart, arrangements being made by the Route Field Club.

Amongst distinguished visitors were Dr. J. Wilfred Jackson, of Manchester University Museum, and Miss Nora Fisher, Liverpool Public Museum, an authority on British shells. The Northern Field Club members represented a membership of about 1,200. A cordial welcome to the visitors was extended by Mr. Brown and Mr. R. Millar, chairman of the Urban Council.

There was a comprehensive exhibition of antiquities and other items of interest, amongst these being a fine exhibit of flints and stone hatchets from the Bann Valley by Mr. A. M'L. May, Coleraine; mosses and ferns by Miss A. M. Irwin, Moneycarrie; exhibits collected in the Dunboe area by Mr. C. Eakin; unusual and valuable series of maps illustrative of the geology, geography, industries, and rainfall of Ulster, and photographs of Ulster and of folklore by Mr. Sam Henry, Coleraine.

An interesting lecture on Ballintoy excavations was given by Dr. Jackson, the exhibits including a skeleton lately found there, probably of neolithic age. An exhibition of lantern slides of general interest was given by Mr. Henry.

On Saturday morning the members journeyed to Coleraine, where they were welcomed by the Mayor (Alderman D. Hall Christie, M.P.) and officials, the borough Mace and Sword being on view. The party afterwards left on an excursion to local places of interest. In the evening a lecture was given by Dr. R. Lloyd Praeger on "The Plants of the Bann Valley," while "The Story of Our Climate as Told by the Shells" was the subject of an address by Miss Fisher. Papers were read on moss hunting and the Bann eel fisheries.

BELVOIR PARK. (Fungus Foray.)

Date—3rd October, 1936. Conductor—A. E. Muskett.

As usual on the annual Fungus Foray, the members secured a magnificent haul of fungi, which subsequently made a handsome display at the *Conversazione* on 13th October.

(No report.)

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

NOTE : All meetings were held on Tuesdays, at 8.0 p.m., in the Museum Buildings, College Square North.

CONVERSAZIONE.

The Winter Session began with a Conversazione held in the Assembly Buildings, on 13th October, 1936, at which there was a very large attendance of members and friends. Tea was served from 6.30 till 7.45 p.m.

The Exhibits included:—

BOTANY.—Capt. C. D. Chase, Some North African Flowers; The President, Specimens from Portstewart to illustrate plant propagation by underground stems; Miss K. M. Bourke and Miss E. Barry, Plant grouping illustrated by specimens; Miss M. W. Rea, A few plants from Killarney; Miss Lynn, Seaweeds to illustrate Tidal Zonation; Miss P. Kertland, Life history of a fern with herbarium specimens; Miss F. M. J. Adams, Slides illustrating the structure of wood; Miss W. J. Sayers, Exhibit to aid identification of our trees—A few of our rarer local plants; Miss A. M. Irwin, Ferns and Mosses; Rev. W. R. Megaw and Roy Guiler, Mosses; R. M. Leeman, F.S.R., Radiographs of plants; P. Warnock, Exhibit to illustrate the importance of sphagnum in the formation of peat; A. Graham, Unusual Plants—Illustrations of plants from Gerard's Herbal; Various Members, Fungi.

GEOLOGY.—A. H. Davison, Geology of Ulverston District; Queen's University, Geology Department, Picture, Hugh Miller; Local Cretaceous Ammonites; A six inch geological map of the Sperrin Mountains made by J. J. Hartley; A. M'I. Cleland, Flints from Antrim plateau, etc.; S. Gibson, Fossils in Flint; T. G. F. Paterson, A. H. Davison and J. J. Hartley, Geological model illustrating the underground structure of the City of Armagh with specimens of the various rocks of the district; Herbert Black, Specimens of fossil plants from Fifeshire; George Barnett, Purple Volcanic Ash and Breccia from Beaghbeg Townland, near Blackrock, Co. Tyrone.

ZOOLOGY.—C. D. Deane, Habitat group of Woodland nesting birds, illustrating protective coloration; Bird migration and Maiden's Lighthouse; J. A. S. Stendall, How a spider constructs web; Duck, cross between Mallard and Muscovy, shot near Downpatrick by Mr. T. W. Q. Martin, 12th December, 1935; Herbert T. Malcomson, Specimen of the Great (or Solitary) Snipe, obtained October, 1935, near Carnlough, Co. Antrim; in a case with Common Snipe and Jack Snipe for comparison; W. M. Crawford, Indian Butterflies; Water Beetles; Louis J. Mason, Lepidoptera from Magilligan, Co. Derry, 1936; some abnormal eggs; Belfast Municipal Museum and Art Gallery, Models of animals that flourished in the Jurassic Period; Miss H. St. G. Gardiner, a living Tortoise.

ARCHAEOLOGY.—J. A. S. Stendall, Arrow made with flint tools; A. M'L. May, Stone tools and weapons found in the Bann area; Miss Mary Gaffikin, Prehistoric Implements, Weapons and Pottery of various ages; Various Members, Objects found in Donegal "Kitchen Middens;" Sands of Banagher; Charles Monahan per George Barnett, Objects unearthed at Beleenabeg Townland, near Blackrock, Co. Tyrone; Angus MacDonald, Stone Implements from North Antrim.

PHOTOGRAPHY.—C. D. Deane, "Nature and the Camera;" Natural History photographs; Dr. R. H. Hunter, Photo enlargements of Wild Animals, 20 x 25 ins.; A. M'L. Cleland, Photographs; Miss May L. Dunlop, Photos of Shrewsbury and District; A. R. Hogg, Lantern Slides of rock gardens, hand coloured; W. D. Fry, Series of animal photographs.

MISCELLANEOUS.—Miss Mawdsley, Old fashioned jewellery; J. A. S. Stendall, Puffin coins and stamps privately issued in 1929 on Lundy Island (Bristol Channel); Forged Bank of Ireland note 1804, and the penalty; W. Erskine Mayne, Display of Scientific Books relating to the Activities of the Club.

JUNIOR DIVISION EXHIBITS.—Butterflies, Moths, Chrysalids, etc., R. V. Gotto; Local Flowers, Canadian Dried Flowers, Living Snails with Pedigrees, Felicity Bolton; Butterflies, Archaeological Model, Leslie Stendall; Metallised Fossils from Whitepark Bay, Ammonites, Jet, etc., Viola Benson; Useful Herbs, Harold Fricker; Irish

Grasses, Ethel Garrett; Fossils, Seashore Specimens, Model of a Souterrains, Jean M'Veigh; Irish Seashells, Helen Johnston; Co. Derry Shells, Antiquarian Photographs, Living Lagan Molluscs, Noel Gregg; Butterflies, Moths, Dragonflies, Live Chrysalids, Cyril Mason; Butterflies and Moths (1936 additions to his collection), George Burns; Mosses, Geological Specimens, Roy Guiler; Photographs of Antiquities, Archaeological Models, Brice Duffin; Fossils, Brian Teuton; Account of recent Archaeological Excursion, Nora Bradley; Chemical Garden, Joan M'Connell; Leaves, Audrey Nelson; Model of Prehistoric Village, Patricia Macmahon; Grasses, Seaweeds, Geological Specimens, Edna and Dorothy Nelson; Geological Specimens, William and Patrick Getty; Fern Leaves, Maureen Garrett.

FRIENDS' SCHOOL, LISBURN.—Natural History Society, Hon. Secretary, J. A. Benington, B.Sc. General Society Exhibits—Water Birds at Home; Map of Excursions; Photograph Album. Individual or Group Exhibits—Bird Migration Map and Drawings of Umbelliferae, J. Walker, P. Baillie, J. Lamb, H. Henning, A. FitzSimons, J. Tyler, B. Simpson, D. Houston, N. M'Cullough, P. Mayes; Drawing of Peregrine Falcons at home, R. Bell; Collection of Wild Duck's down and nest feathers, R. Ward, W. Edwards; Prey of Peregrine Falcon, T. Snoddy and W. Sinton; Newt Tadpoles, B. Johnson; Nature Diaries and Collection of Conifers, M. Douglas, A. M'Clay, H. Poole, H. Hewitt, S. Houston, R. Johnson, F. Williamson, H. Green, H. M'Cullough, R. Hobson, H. Henning, H. Corbett, W. Glass, B. Glass.

During the evening the President presented Prof. J. K. Charlesworth, D.Sc., Ph.D., F.G.S., with the Club Medal, which was awarded to him for his distinguished scientific work, coupled with his long continued interest in all matters concerning the welfare of the Club.

THE PASSING OF R. J. WELCH.

During the evening Mr. J. A. S. Stendall made an appeal on behalf of the proposed Welch Memorial Fund, saying in the course of his remarks:—

R. J. Welch did an enormous amount of work for the Club; his whole life was spent in helping others, especially young people. By his death the Club had lost one of its greatest members, and it was felt that his memory should be kept ever green.

The Committee had discussed the matter, and unanimously agreed that his name should be perpetuated in the city in a proper manner. It had decided to launch an appeal to raise a fund for the purpose of acquiring the Land and Freshwater Molluscs collected in his leisure moments, a magnificent collection which should not be scattered under any consideration.

As a scientific and archaeological photographer R. J. Welch was known over the whole world, and his book illustrations were to be found in many scientific institutions. His negatives must be saved and not dispersed.

These collections would be presented to the city of Belfast, where his life work had been carried out. It was also proposed that his portrait should be prepared and hung in the Municipal Museum.

The Committee's aim was to raise £500 at least. If funds allow, after these schemes have been carried out, the balance will be applied to the founding of a scholarship or lectureship to be named after their dear old friend.

"So long as we remain," concluded Mr. Stendall, "the name of R. J. Welch will be remembered. When we are gone it will be forgotten unless we do something now to make sure his name shall never die. He was a wonderful man, the like of whom neither we nor our successors are ever likely to meet again."

The Subscription List was opened at once, a very handsome sum being contributed before the close of the meeting.

GEOLOGY AND MAN.

The first ordinary meeting of the Winter Session was held on 3rd November, 1936, when the President (Mr. A. H. Davison, F.R.S.A.I.) delivered an address on above subject to a very large audience.

The President referred to the first trace of modern mammals in the period when the London clays were being laid down and the basaltic lavas of the Giant's Causeway, Cavehill, and Gobbins were being poured out. In the following period, the Miocene, they found an enormous development of man-like apes such as *Dryopithecus*. This was the period when the Alps, Himalayas, Pyrenees, and other high mountain ranges were heaved up. The animals living on the site of these were unaware of any movement,

just as they to-day were insensible to the tilting of these islands. The effect was to separate the apes south of the Himalayas from those to the north, and it was suggested that in consequence of the dry condition and absence of trees to the north and the generally more difficult conditions brought about by this great barrier to the moisture-laden winds those apes to the north made great progress towards the erect position, the freeing of the hands, and a larger brain, as well as those more spiritual things which had resulted from family life and the tying of the female to the home.

At the beginning of the next period, the Pliocene, the South of England lay 800 feet below its present level, but during this period the land rose and the North Sea came into being. Now, for the first time, they found something which might be regarded as the work of man, that is the Kentish eoliths. These were found along with remains of extinct animals, such as the *Stegodon*, *Hippopotamus*, *Mastodon arvernensis*, and *Elephas meridionalis*. The skull of *Eoanthropus* or Piltdown man was found amongst these, and the argument is not settled as to whether this skull was contemporary with these animals or not.

The recent discovery of an interesting skull in the 100-foot terrace at Swancombe, Dartford, along with Acheulean implements, supported a later and Pleistocene date, and further substantiates Sir Arthur Keith's opinion of the contemporary existence of different kinds of men and the persistence of primitive types longer than was formerly believed.

The President traced the history of the Upper Palaeolithic men in the caves of France and England, and dealt particularly with that "Stonehenge of the caves of Europe," Kent's Cavern, Torquay, and in the caves of Derbyshire and Nottinghamshire, and he carried forward the story into the Mesozoic period.

Since the period of glacial retreat, say, 30,000 years ago, when the Malone sands were laid down, the geological associations with man had shifted northwards. The Baltic area—Scandinavia, Finland, Denmark—as well as North Britain and Northern Ireland, became important. These areas lay just beyond the new positions taken up by the retreating ice, and so fulfilled the same function that the Somme and Thames valleys did during the earlier periods. The changes brought about by the retreat were so profound and rapid that they afforded a natural time scale for dating and synchronising of human cultures.

De Geer's chronology of the last 12,000 years, based on the measurement of the layers of mud deposited in the melt waters of the retreating ice, gave them a natural system of dating not approached by any chronology based on human development. Layers had been dated by his pupil, R. Liden, for a period of 8,700 years, with a possible error not exceeding 100 years.

Another valuable source of information, resulting from the elevation and submergence of this part of the world, were the deposits and raised beaches which these regressions and transgressions of the sea caused. At one time the Baltic was a strait connecting the Arctic Ocean and North Sea, and in the deposits of this period was found a shell called *Yoldia arctica*, which now lived in the Arctic seas at a temperature below freezing point. Then later the Baltic became a fresh-water lake inhabited by a fresh-water limpet called *ancylus fluviatilis*. Later again it became a salt sea, but open to the south only and supporting a warmer fauna than it did to-day. This stage was called the Littorina Sea from the winkle so common round our coast to-day, and at that time common in the Baltic. These stages could be correlated to the raised beaches and sunk river valleys of surrounding countries and with the human cultures then existing.

Last, but not least, they had that wonderful method of correlating both the previous methods of dating by pollen analysis. Its aim was to establish the pollen content of recent geological deposits and from this to tell the plant geography at the time they were laid down. By comparing the pollen spectrum, as it was called, of different sections they were enabled to trace the wandering of forests and plants over long periods from place to place.

Further, the succession of forest trees enabled them to estimate the different climates—Boreal, Atlantic, Arctic, etc.—and they could trace their connection with the retreat of the ice and the elevation and submergence of the land.

One of the earliest pioneers in this work of correlating the fauna and flora with changes in sea-level was their own member, Dr. Praeger, who many years ago showed them the changes of climate which had taken place during the deposition of the estuarine clays of Belfast, and one of the latest workers was their talented young member Miss Nora Fisher, who had been working in conjunction with the Harvard Mission at Larne, Harbour, Glenarm, and Cushendun.

They already, the President concluded, had one important report from that learned body on their excavations at New Ferry, near Portglenone. At this site a group of hearths was found resting on lake silt near the present course of the River Bann. In the ash-spread from these hearths were found many implements of Bann type. The hearths were found to lie at the base of a thick layer of diatomaceous clay, which was deposited, as determined by Professor Jessen from pollen analysis, about the beginning of the sub-Boreal climatic period—perhaps 2,000 B.C. The presence of polished stone axes and neolithic pottery was of interest and also indicated a late date.

Other of their members had been active in cave exploration in Northern Ireland and the stratigraphy found in them, particularly Miss M. Gaffikin and Dr. J. Wilfred Jackson, whose reports had appeared in the *Irish Naturalists' Journal* from time to time.

Nothing definitely dateable to an earlier period than Iron Age was found *in situ* in the caves. The archaeological finds consisted of pottery, double-ended bone combs, bone needles, flint flakes, and bone and antler implements.

In addition to these, a strange figurine was found, which, it was suggested, might have been the representation of a Mother Goddess. The bones of the larger animals consisted of ox, sheep, pig, horse, and deer. Flint blades of Bann type, which, as they had seen, were dated by the Harvard Mission as Neolithic, were found in the same layers as Iron Age pottery. The question arose—were these derived from the older period or did they remain in use into the Iron Age? The former was probably the answer.

Excavation for the purpose of reconstructing the history of man and his associations was not a one-man affair. It necessitated the co-operation of the archaeologist, zoologist, botanist, and geologist—just those things in which they, as a Field Club, were interested. While as individuals they might not have the ability or the time to help in this work their interest in it encouraged those who were doing it, and they could provide a body to whom excavators might report progress from time to time, or when more material help was required, a body which might help to create public interest.

At the conclusion of the address, which was freely illustrated by lantern views, R. S. Lepper expressed to the President the appreciation of the excellent discourse to which they had been privileged to listen.

BOTANIZING IN THE GARDEN AND THE FIELD.

The second ordinary meeting of the Winter Session was held on 17th November, 1936, when Miss W. J. Sayers, B.A., gave an address on the above subject, very well illustrated by lantern views.

[No Abstract.]

GEOLOGICAL EVENING.

The third ordinary meeting of the Winter Session was held on 1st December, 1936, when three short papers were submitted, as follow:—

“Flints,” by A. M'I. Cleland.

“Soils,” by R. H. Common, B.Sc., M.Agr.

“Precious and Semi-Precious Stones,” by J. J. Hartley, M.Sc.

The above were illustrated by numerous specimens and samples, and each paper gave rise to a keen discussion.

[No Abstracts.]

QUERY NIGHT.

The fourth ordinary meeting of the Winter Session was held on 15th December, 1936, and took the form of a “Query Night,” the first time such an item had appeared on the programmes of the Club.

A “questionnaire” had been prepared, from items submitted by various members, and included twenty-five “Queries” embracing such subjects as: Archaeology and History; Botany; Zoology; and Geology.

The various questions were fully answered by the following:—E. E. Evans; O. Davies; A. A. Campbell; Miss Kertland; Dr. R. Ll. Praeger; C. R. Nodder, J. S. Loughridge; J. J. Hartley; and others.

The large audience was keenly interested in the varied answers, and the discussions that followed some of them, and the evening proved to be a great success.

ZOOLOGICAL EVENING.

The fifth ordinary meeting of the Winter Session was held on 19th January, 1937, when two short papers were submitted, as follows:—

“Birds,” by J. S. Loughridge.

“Other Animals,” by J. A. S. Stendall.

The papers were illustrated by lantern views and gramophone records of Bird Songs.

[No Abstracts.]

STONE CIRCLES IN NORTHERN IRELAND.

The sixth ordinary meeting of the Winter Session was held on 2nd February, 1937, when papers on above subject were submitted by O. Davies, M.A., and E. E. Evans, M.A., F.S.A.

Mr. Davies described the various types of stone circles, most of which were discovered while carrying out survey work for the "Preliminary Survey of Ancient Monuments," to be published shortly by the Ministry of Finance. There was one example at Ballynoe, County Down, but it seemed different from others; otherwise they were confined to Derry, Tyrone, and Fermanagh.

The stones were usually small, and they had often been found recently in cutting turf off stones. He spoke of the various types of stone and rock, and illustrated the alignment and formation of the examples. Some of the sites where large rocks were found formed chambers, cairns, and other shapes. In a great proportion of these it was impossible to tell the age, but some of them dated back to the period of the clansmen and Bronze Age.

Mr. Evans followed with an account of analogous monuments in Great Britain, where Stonehenge and Avebury were quite outstanding. Here complex circles occurred inside rings, the chief element of which was a bank that seemed to serve as a place for spectators. More recently wooden circles had been discovered by air photography, and excavation had shown them to belong to the Bronze Age. The Giant's Ring, near Belfast, clearly belonged to the same group of sacred enclosures.

He stressed the significance of geographical distribution and said that the evidence pointed to a fusion of ideas, which resulted in the springing up of new forms of architecture. He also described the distribution of megalithic monuments in the British Isles, and showed that a great number of these were to be found in Northern Ireland. He described Stonehenge as one of the greatest archaeological puzzles of all.

The papers were fully illustrated by many excellent lantern views.

SOME MUSEUM FANCIES, FACTS AND FADS.

The seventh ordinary meeting of the Winter Session was held on 16th February, 1937, when J. A. S. Stendall, M.R.I.A., submitted a paper on above subject, which was fully illustrated by very fine lantern views.

[No Abstract.]

PROGRESS OF THE NEW FLORA OF THE NORTH-EAST OF IRELAND.

The eighth ordinary meeting of the Winter Session was held on 23rd March, 1937, when Dr. R. Ll. Praeger, D.Sc., M.R.I.A., submitted a paper on above subject which aroused great interest.

[No Abstract.]

During the Winter Session, Mr. Oliver Davies, M.A., delivered, under the auspices of the Club, in the Geology classroom of the University, a course of five lectures on Archaeology. He dealt with "The Near East," "Megalithic Civilisation," "Early Metallurgy," "The Celts," and "Greek and Roman Contacts with the British Isles." The attendance at the course was exceptionally large.

ANNUAL MEETING.

The Annual Meeting was held on 13th April, 1937, the President (A. H. Davison, F.S.A.I.) in the chair. The following Reports were presented:—

ANNUAL REPORT.

In presenting the Annual Report your Committee has pleasure in recording the continued prosperity of the Club. During the year, 43 new members were elected; 15 resigned; 17 were struck off the roll for non-payment of subscription; 6 died. On the 31st March, 1937, the membership was 500, and on the corresponding date last year it was 513, a decrease of 13 members. The Junior Division is flourishing and the 5 Affiliated Clubs are in full activity.

As on former occasions, several members of your Committee have assisted the Affiliated Clubs by giving lectures. They were:—D. J. Carpenter; Rev. W. R. Megaw; Miss W. J. Sayers; J. A. S. Stendall; J. Skillen; Prof. Gregg Wilson; A. H. Davison; Prof. J. K. Charlesworth.

The various Sections of the Club have worked vigorously during the year, as will be seen from the reports appended.

Your Committee held 12 meetings, with an average attendance of 8 members.

The Summer programme of Excursions was carried out in its entirety, very satisfactory numbers being present.

As usual, the *Conversazione* proved very attractive, being as extensively patronised as any in the past. The Committee desires to give warmest thanks to all those concerned for the time and trouble taken in providing such extensive and varied exhibits. The Committee desires to offer appreciative thanks to the donors of the *Conversazione* prizes.

At the close of the *Conversazione* the President presented Prof. J. K. Charlesworth with the Club Medal, which was awarded to him for his distinguished scientific work, coupled with his long continued interest in the Club. The President also handed the prizes and certificates awarded to the Juniors. Several new members were elected, and Mr. T. G. F. Paterson, of Armagh Museum, was elected a Corresponding Member.

The Winter Session of lectures, etc., was carried out completely, the attendance at the various meetings being very satisfactory and encouraging.

A series of five lectures on Archaeology was delivered to our members during the winter by Mr. Oliver Davies, M.A. These lectures were very well attended and of much interest. The Committee desires to thank Mr. Davies very warmly for giving his time and expert knowledge so fully for the benefit of the Club. The Committee is also under an obligation to the Vice-Chancellor for permission to meet in the University.

The preparation of the new edition of the "Flora of N.E. Ireland" is now well forward, in the capable hands of Dr. Praeger, the editor, and Miss W. J. Sayers and Rev. W. R. Megaw, his chief assistants. The Committee gratefully acknowledges the receipt of the very handsome donation of £100 from Mr. F. Adens Heron, D.L., F.R.S.A.I., towards the cost of publication.

Your Committee has approached the City Corporation with a view to the preservation of the natural features of the Belfast Castle estate, and has had satisfactory assurances that this matter would be kept in view.

The Committee is pleased to know that the National Trust, to whom we are affiliated, has acquired some properties in Northern Ireland, and hopes that the grants received will be the first of many more.

In conclusion we wish to thank the Press for reporting our meetings, and various Societies for furnishing us with copies of their publications during the past year.

JOSEPH SKILLEN	}	Hon.
W. G. R. SKILLEN		Secretaries.

OBITUARY.

Several members have passed away during the year under review, including R. J. Welch, M.Sc., M.R.I.A., whose death is especially deplored. He joined the Club in 1880, and was therefore a member for 56 years. During that period he took an ever active interest in the work of the Club. He held office as President and Hon. Secretary, and was awarded the Club Medal in 1928. He was a constant friend of all, particularly of the Juniors, and was always willing to share with others his intimate knowledge of Natural Science. Your Committee is pleased to be able to report that a successful effort has been made to perpetuate his memory by raising a Fund to purchase his collections of Mollusca and Scientific and Archaeological photographic negatives. These will eventually be presented to the Municipal Museum, Belfast. A life-like portrait of R. J. Welch appears on Plate II, facing page 377.

Henry Coey.

R. W. Grimshaw.

Dr. C. J. Milligan.

Geo. C. Riley.

W. H. Turtle.

R. J. Welch, M.Sc., M.R.I.A.

REPORT OF HON. LIBRARIAN.

There is little to report. The work proceeds as usual. An exchange is being arranged with the Connell University Agricultural College, which is anxious to have our Proceedings in its Library. The usual list of Exchanging Societies is annexed.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF HON. RECORDING SECRETARY.

A rather severe winter and cold dry spring had but little effect on the arrival of spring migratory birds, though they were in the main slightly later in making their appearance than in 1935.

Fulmar Petrels continue to increase on our northern coast, now nesting on the mainland cliffs in some numbers. It is sixteen years since this species was first recorded as nesting on Rathlin Island, and its extension has continued steadily.

An extensive colony of Tree Sparrows was noted in early June, 1936, nesting in rock clefts, also on the north coast, the exact locality being repressed at present.

On 24th May, 1936, C. D. Deane observed a party of four Bewick's Swans on Lough Beg, Co. Londonderry, an exceptionally late date for these winter visitors.

Miss Agatha Crawford recorded a Wood Warbler, on 23rd May, from the woods above Rostrevor, and a day later observed a solitary example of Irish Jay. Since then I have learnt that Jays now frequent the immediate Rostrevor district in some numbers, and Rev. W. R. Megaw has secured evidence that the species nested there in 1936.

Mr. Robert W. Bingham, M.A., of Dungannon, forwarded me a young Jay from Moy, which had been shot on 18th June, 1936. This bird was so immature that there is no doubt whatsoever it was from a nest in the vicinity. So, in one year, we are able to add both Co. Down and Co. Tyrone to the list of those in which the Jay nests. The spread northward of this bird is interesting, but we do not want too many of them.

Another nesting species of duck has been added to the Ulster list, in the Gadwall, noted by J. A. Benington, B.Sc., one of our Corresponding Members. Mr. Benington had previously added the Pintail to the Ulster nesting list, and he has presented proof of each species, in the form of an egg and nest feathers, to the Municipal Museum.

The end of the winter 1936-7 saw severe weather conditions with heavy snowstorms. During and after this period Waxwings made their appearance in some numbers, in fact the invasion seems to have been the largest on record in Ireland. Birds have been reported from Annalong, Newcastle, Dungannon, Aghalee and Bessbrook, and Ballysillan, Belfast.

Mr. W. M. Crawford has continued his work among the water beetles, making an interesting addition to the Irish list in *Rantus pulverosus* (Stephens), taken in October, 1936, from what has been termed "a noisome pool" near the King's Bridge, Belfast. Other captures made by Mr. Crawford during the year are recorded in *I.N.J.*

Attention is directed also to *I.N.J.* for a list of local mosquitoes, prepared by Professor Gregg Wilson.

Botanists have concentrated on the verification of old recorded stations, in view of the pending publication of the

new *Flora* which is being compiled by members of the Club, under the expert supervision of Dr. Praeger. The mosses and liverworts are being assiduously worked by the Rev. W. R. Megaw for inclusion in the new publication, of which recent records are to be found within the pages of *I.N.J.*, including one variety new to Ireland and several vice-county additions.

Archaeological investigation in Northern Ireland has been almost exclusively devoted to the excavation of Megalithic Monuments, from which much interesting material has been obtained and deposited in the Municipal Museum. Miss Gaffikin has been actively connected with several of the excavations, though I think it is permissible to say the main work has been carried out by members of the Archaeological Section of the sister Society, with which many of our own members are closely connected.

J. A. SIDNEY STENDALL, *Hon. Recording Secretary.*

REPORT OF BOTANICAL SECTION.

During the year the botanists have been more active than usual, owing to the approaching publication of the new edition of the "Flora of North-East Ireland."

Sectional excursions were made to Belfast Castle Grounds on May 2nd; Toomebridge on May 16th; and to Derry Lough and Long Lough, near Ballinahinch, on June 20th. Some good field work was also done at Benevenagh on May 9th; Cushendall and neighbourhood on May 23rd; Glenoe and Glynn on June 18th; Comber estuary on August 29th; and at Portstewart and Magilligan at the end of September. The variety of habitats illustrated by these excursions furnished material for a lecture by Miss W. J. Sayers on "Plant Ecology" on November 17th, Alpine, woodland and saltmarsh plants being dealt with.

The re-discovery by the President (A. H. Davison) in Belfast Castle Grounds of a plant, the Moscatel (*Adoxa moscatellina*), recorded from there about 30 years ago, and elsewhere unknown in Ireland, helped to awaken so much interest in these grounds that a resolution was passed by the Club at a meeting early in the year asking the City Corporation to "take steps to protect and preserve the natural beauties of the Belfast Castle Estate," which the Corporation has now promised to do.

W. J. SAYERS	} <i>Hon.</i>	
W. R. MEGAW		
		<i>Secretaries.</i>

REPORT OF GEOLOGICAL SECTION.

The Section held three excursions during the session. On May 30th they visited Waterloo, Larne, under the leadership of Mr. G. Barnett. The various horizons of the Trias, Rhaetic and Lower Lias were examined and numerous fossils collected.

The second excursion to Colin Glen on June 6th consisted of a traverse across the same series of beds as those at Waterloo. The two excursions were thus designed to supplement each other and to show the essential similarity with variation in detail which distinguishes the two localities.

On October 10th a demonstration was given in the Geological Dept., Q.U.B., on "Fossils and their uses in subdividing the Geological Systems." Special emphasis was laid on the distinction between the Graptolites of the Ordovician and Silurian and the various types of corals which indicate different horizons in the Carboniferous.

At the Geological Evening on 1st December three short papers on "Flints," "Soils" and "Precious and Semiprecious Stones" were read by A. M'I. Cleland, R. H. Common and J. J. Hartley respectively.

In addition to the purely Sectional Excursions the evening visits to the Giant's Foot, Whiterock and Carnmoney Hill, both mainly of geological interest, may also be referred to.

J. J. HARTLEY, *Hon. Secretary.*

REPORT OF ZOOLOGICAL SECTION.

The Section held two excursions during the Summer Session, and in each case marine biology was the objective.

The first excursion was made on 30th May to Ballymacormick Point, where the afternoon was spent in the study of the animal life of the rock pools.

The second excursion, on 18th July, was to Downhill, where the conchology of the famous Magilligan Strand was studied.

The Sectional meeting, on 19th January, was devoted to a review of animal migration, J. A. S. Stendall dealing with the Salmon and the Eel and J. S. Loughridge with the Migration of Birds.

J. S. LOUGHRIDGE, *Hon. Secretary.*

ARCHAEOLOGICAL SECTION.

Three excursions were held during the summer. The first was on 8th August, when the Section visited Tandragee Castle, the " Black Pig's Dyke " in Scarva House demesne, Lisnagade, and other places of interest in the district.

On 22nd August Newcastle district was visited, calling at Drumena cashel and souterrain, Maghera Round Tower, and Dundrum Castle.

The third excursion was to Hillsborough, on 12th September, including an inspection of the eighteenth century Parish Church and of the Fort, which dates back to the reign of Charles I.

A. A. CAMPBELL	}	<i>Hon.</i>
R. S. LEPPER		<i>Secretaries.</i>

REPORT OF ANTIQUITIES SURVEY COMMITTEE.

After consultation with prominent members of the B.N.F.C. it was decided to concentrate during the past year on working in connection with the Handbook of Antiquities brought out by the Ancient Monuments Advisory Committee. Two of the main reasons for arriving at this decision were as follows:—First—in view of the fact that the existing Government Records of Antiquities, which had hitherto formed the basis of the B.N.F.C. Survey, were in many cases in need of revision, it was deemed advisable to suspend card indexing until the completion of the Handbook of Antiquities.

Secondly—as the cost of publishing all the information collected by the B.N.F.C. Survey of Antiquities would be considerable, the chance was welcomed of making this material public through the medium of the Government Handbook. Accordingly all details as to sites of Antiquities, etc., were freely given to workers for the Government, who also made use of the Club's field work maps. The co-operation of the B.N.F.C. will be acknowledged in the introduction to the Handbook, a copy of which is being presented to the Club and will be kept in the Library of the Belfast Municipal Museum.

A paper on the Megalithic Monuments of N. Ireland, which was largely based on the records of the B.N.F.C. Survey, was read by Mr. Estyn Evans and Miss M. Gaffikin at the Congress of Prehistoric and Proto-Historic Sciences held in Oslo last August. The Survey Maps

continue to be used by students of Queen's University. Mr. Ivor Herring, of The Royal Belfast Academical Institution, has, with the permission of the B.N.F.C., reproduced in his *History of Ireland* the Survey's distribution maps of megalithic monuments and of ring forts, cashels and crannogs. Photographs of picturesque and unusual views of Legannany dolmen and the Kempe Stone, presented by Mr. A. M'I. Cleland, have been made into slides and used in lectures, both these slides being shown in Oslo and receiving much admiration. Special mention should be made of an interesting report by Miss Rea of a round cairn containing a cist near Strangford, Co. Down. Also of reports and photographs of forts and a cashel with a passage in the wall near Cushendun, Co. Antrim, by Mr. Crozier. Mr. R. M'Namara, Ballynahinch, continues to furnish excellent reports on the Antiquities of his district.

M. GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

The Junior Division now numbers 87 members. Its Committee met four times during the year and gave valuable help to the Junior Hon. Secretaries.

The following excursions and meetings were held:—

1936.

- May 2—Cave Hill, with the Botanical Section.
- May 9—Lough Neagh, to visit nesting places of sea-birds.
- May 12—Giant's Foot and Whiterock, with the Seniors.
- May 30—Ballymacormick Point, with the Zoological Section.
- June 6—Studying elementary botany with Captain Chase.
- Sept. 19—Newcastle and neighbourhood, for Archaeology.
Here, among other objects, the Juniors visited souterrains for the first time. All transport and refreshment was very generously provided by Miss M. Gaffikin.
- Oct. 3—Belvoir Park, on fungus foray.
- Oct. 10—Malone Golf Links, gathering living specimens for *Conversazione*.
- Dec. 9—Municipal Museum, for bird study and records of bird-songs.

1937.

Jan. 16—Social, at Museum Buildings, the first meeting of the kind organised by the Juniors. Fifty members and friends attended, and games and competitions were organised which were tests of Knowledge of Natural History.

E. BARRY	}	<i>Hon.</i>
W. NODDER		<i>Secretaries.</i>

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Prager, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, M.A., M.R.I.A., D.Sc.,
O.B.E.
- 1935. No award.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.

BELFAST NATURALISTS' FIELD CLUB. **HONORARY TREASURER'S ACCOUNT FOR THE YEAR ENDED 31st MARCH, 1937.** **Receipts and Payments on General Account.**

RECEIPTS.		Preceding Year.	PAYMENTS.		Preceding Year.
Balance in Bank at 31st March, 1936	£73 9 4	...	Printing and Stationery	... £50 1 4	...
Subscriptions received during year :-		...	Postages	... 34 3 10	...
418 @ 6/- and 26 @ 3/-	...	£129 6 0	Incidentals, Secretary's Telephone, Clerical Assistance, etc	... 13 1 8	...
Arrears paid :-		...		£97 6 10	...
40 @ 6/-	...	12 0 0	Hire of Lecture Hall and Committee Room	...	14 17 6
Paid in advance for 1937/38 :-		...	Lanternist's Fees and Travelling Expenses	...	5 0 0
9 @ 6/-	...	2 14 0	Conversazione Account (without charging Printing and Postages)	...	9 15 0
Entrance Fees, 41 @ 5/-	...	£144 0 0	<i>Irish Naturalists' Journal</i> , Affiliation Fee	...	3 0 0
Excursions Account (without charging Printing and Postages)	...	10 5 0	Cost of prints of Antiquities Survey Article	...	—
Proceeds from Lectures held at Queen's University	...	2 17 8	Cost of publication of Proceedings for 1932/33 and 1933/34	...	—
Club Badges sold, 6 @ 2/-	...	0 12 0	Subscription, The National Trust	...	0 10 0
Donations	...	0 16 0	Second Grant towards Publication of new Edition of Flora of North-East Ireland	...	25 0 0
Junior Division Subscriptions, 1935/36	...	3 17 6	Junior Division Expenses: Typing Circulars, Printing Winter Programmes, Postages, etc.	...	8 7 2
	205 7 3	181 3 0		£163 16 6	...
			Balance with Northern Bank, Ltd., on the Club's No. 1 Current Account, at 31st March, 1937	...	64 17 6
	278 16 7	£228 14 0		£228 14 0	...

RECEIPTS AND PAYMENTS ON ACCOUNT OF COST OF PUBLICATION OF NEW EDITION OF "FLORA OF NORTH EAST IRELAND."

Preceding year.	RECEIPTS.	PAYMENTS.	Preceding year.
—	Balance in Bank at 31st March, 1936 ..£25 0 0	The Misses Watson, Dublin, for Typing Manuscripts, paid on instructions of Dr. R. Lloyd Praeger ...£15 0 0	£15 0 0
—	Sales of <i>Flora Supplements</i> , per Mr. W. M. Crawford, B.A. ... £1 18 7		
—	Donation from Mr. F. Adens		
—	Heron, D.L., F.R.S.A.I. ... 100 0 0	Balance with Northern Bank, Ltd., on the Club's Deposit Account, at 31st March, 1937	137 15 2
—	Interest to 31st December, 1936 0 16 7		
—	Second Grant from Belfast Naturalists' Field Club ... 25 0 0		
£25 0 0	127 15 2		
£25 0 0	£152 15 2		£152 15 2

411

RECEIPTS AND PAYMENTS ON ACCOUNT OF THE ROBERT JOHN WELCH MEMORIAL FUND.

RECEIPTS.	PAYMENTS.
— Subscriptions received ... £288 18 6	Outlays to date on Printing, Postages and Receipts £16 4 9
	Balance with Northern Bank, Ltd., on the Club's No. 2 Current Account, at 31st March, 1937
	272 13 9
£288 18 6	£288 18 6

Audited and found correct.

R. G. HENDERSON, Hon. Treasurer
1st April, 1937.

A. ALBERT CAMPBELL.
CHARLES R. NODDER.

PROCEEDINGS
AND ANNUAL REPORT
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1938
(SEVENTY-FIFTH YEAR)

SERIES II.
VOLUME IX.



PART X.
1937-38.

EDITOR:
A. M. I. CLELAND.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-FIFTH YEAR, 1937-38.

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Hon. Secretaries Archaeological Section :

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J. SKILLEN.

Hon. Secretary Survey of Antiquities Committee :

MISS MARY GAFFIKIN.

Hon. Secretary Junior Division :

MISS E. BARRY.

Members of Committee :

Retire 1938.
C. R. NODDER, M.A.
JAMES ORR, M.B.O.U.
WM. SWEENEY.

Retire 1939.
MISS KATHLEEN BOURKE, B.SC.
Capt. C. D. CHASE, M.C., M.A.
A. McI. CLELAND.

Retire 1940.
D. J. CARPENTER, A.R.C.SC.L.
Mrs. C. R. NODDER.
W. J. WEATHERUP, B.SC.

Honorary Secretaries :

JOSEPH SKILLEN,
W. GRAHAM R. SKILLEN, } 25 Stranmillis Gardens.

PROCEEDINGS.

SUMMER SESSION.

BUNDORAN AND DISTRICT. (United Excursion.)

Date—7th till 9th May, 1937. Conductors—Dr. R. Ll. Praeger,
W. R. Henderson and J. Skillen.

The first excursion of the Summer Session was made to County Donegal, with Bundoran as headquarters. There was a very large attendance of members from Belfast, Limavady, Londonderry, Tyrone, and Omagh Field Clubs. The weather was fine, that usually associated with "the merry month of May," bright sunshine tempered with a gentle breeze.

Making an early start from Bundoran on Saturday, 8th May, the road was taken to Ballyshannon, and here at the bridge across the Erne was in waiting Mr. W. Ross Henderson, J.P., of Newtownstewart, the conductor for the day. Ballyshannon is one of the most interesting towns in Donegal, if not in the North, being mentioned in history as far back as 2,000 B.C., when Red Hugh, father of Macha of the golden hair, who founded Emania in Armagh, was drowned at the "Falls of Assaroe" and buried in Mullagh-nashee, where the parish church now stands.

While at Ballyshannon the party visited the birthplace of Allingham, the poet, and the military barracks, now partly derelict, which are of interest because the celebrated Lord Castlereagh stayed here, and for the ghost, much written about, that visited the building.

Leaving Ballyshannon the road was taken to Ballintra, and on the way a stop was made at Assaroe Abbey, now in ruins, only one wall and a piece of the west gable remaining. This abbey was founded for the Cistercians in 1178, and the two-arched bridge, built by the monks about this period, is still in use. Its architecture is most interesting as it is one of the earliest stone bridges in Ireland. In the graveyard is the tombstone of Michael O'Cleery, chief of the Four Masters who compiled the Annals.

Arriving at Ballintra the members visited the famous caves and underground river at Brownhall, by kind permission of the proprietor, Captain Hamilton. These caves have been formed by the solvent action of water acting on limestone, and this action also produced the "Fairy Bridges" at Bundoran.

While at Brownhall Captain Hamilton exhibited to the members an ancient ecclesiastical bell which had been found in the neighbourhood, as well as some other bronze objects. The next stop was at Donegal at the Abbey of the Four Masters, so called as the Annals were probably written in the ruined cloisters during the years 1632 to 1636. The Annals are a chronicle of events from B.C. 1762 to A.D. 1616. This Abbey was erected for the Franciscans by Hugh O'Donnell in 1474. The building was destroyed in 1593 during the chronic wars of that period. The remains of the Abbey are being carefully preserved as an ancient monument. The party took their lunch in the precincts of the Abbey, after which Donegal Castle was visited. This was built on the site of the old fortress of the O'Donnells, and is a fine example of Jacobean architecture, joint fortress and dwelling-place. The way back was through Rossnowlagh, noted for its fine series of drumlins and its famous strand with its storm beach.

On the way Kilbarron Castle was inspected. This entailed a long walk through a stone dyked country, but it was well worth while. The castle was the home of the O'Cleerys, a tribe which, driven out of Connaught by the De Burgos, received hospitality and lands from the O'Donnells and erected this castle. It is a promontory fortress, like Dunluce and Kenbaan, but little of the masonry now remains. It had been a formidable stronghold in its heyday, and the outlook from the site is unsurpassed in rugged grandeur. From the walls there is a sheer drop down to the wild Atlantic.

On the way back to Bundoran time only permitted a glance at Ballymacward Castle, the home of the celebrated Colleen Bawn. Following dinner, a meeting was held in the Central Hotel, and after the President had made some necessary announcements Miss W. J. Sayers gave a talk on the wild flowers collected during the day, and this was supplemented by Dr. Praeger, who also dealt with the geology of the district. Colonel Berry followed with a talk on archaeology, the subsequent speakers being R. S. Lepper and J. Skillen.

On Sunday, the 9th, the forenoon was free, a large proportion of the members attending divine service in Ballyshannon. In the afternoon the members left to visit Glenade, a beautiful cliff-walled valley, a thousand feet deep, cut in the carboniferous limestone and embosoming a lake of considerable size. The slopes of the mountains are the habitat of the rarer alpine plants, and it is gratifying to know that all those plants noted in the past were found on this occasion. The valley of Glenade is in shape very like that of Glenariff with the addition of the lake, and the bare cliffs running along the mountain sides instead of being grass-grown as at Glenariff. It was interesting to hear from a resident on the lake shore that in former days two monsters lived in the lake, who raided the cattle on the lough shore. Ultimately the monsters were killed by a valorous person, but how this was effected is too long a story to relate here.

On returning to Bundoran tea was partaken of, and the party left for home after an extremely interesting and instructive time.

DRUMBEG TO LAMBEG.

Date—11th May, 1937. Conductors—J. A. S. Stendall and A. H. Davison. Number present, 40.

This was a delightful evening excursion. The sun shone in all his glory, the midges bit with all their fury; the company was good, and all that members lacked to make the outing fully successful was an abundance of wild life. True a pair of nesting swans was seen; while many swallows and swifts skimmed gracefully overhead, and a kingfisher piped its way along the canal. A solitary corncrake called hoarsely and ever so persistently from the shelter of grass that should have been longer, and graceful little willow warblers poured out melody from the stream-side alders and ashes. But where were the flowers of May? Here and there a scrap or two of bush vetch and the tuberous pea, together with blue bugle that scarcely had managed to leave the safety of mother earth. A low meadow certainly held a good show of brilliantly yellow marsh marigolds, and, of course, the whins were simply a blaze of colour.

Except for the midges insect life could be put down at nil, whereas an evening in mid-May is usually a-buzz with big queen bees and lesser fry.

LOUGHGALL AND ARMAGH.

Date—22nd May, 1937. Conductor—T. G. F. Paterson.

This was an Archaeological excursion, during which the members visited the following places and objects:—Kilmore Church, which takes in part of an older structure, the church and monastery having been founded by St. Mochta of Louth *circa* 422 A.D. and dedicated to St. Aidan; obits of abbots occur in annals from 745 A.D. and lists of vicars and rectors survive from 1367 A.D.; the church contains a memorial to the Rev. George Walker, D.D. (a former rector who died 15th September, 1677 A.D.), father of the celebrated "Defender of Derry."

Castle Raw, an interesting ruined building enclosed within earthen ramparts; erected by Anthony Cope, to whom the manor had been granted, in 1611 A.D. It was occupied by O'Neill's forces in 1641 A.D.

Loughgall Old Church, whose parish is mentioned in the Papal Taxation of 1302-6 A.D. The lists of vicars and rectors begin in 1450 A.D. The church was repaired in 1622 A.D., and used as a prison in 1641 A.D.

The crannoge of Loughgall Lake was inspected, and the botanists found the plants about the lakeside very interesting.

After tea at Armagh the party visited the newly opened County Museum to inspect what had been achieved under the guidance of Mr. J. A. S. Stendall, M.R.I.A. This is a model of what such a museum should be, if planned in the right way and under expert supervision.

BELVOIR PARK.

Date—1st June, 1937. Conductor—J. A. S. Stendall.

This was a Botanical excursion in connection with the forthcoming new edition of the "Flora of N.E. Ireland."
(No report.)

GLENSHESK.

Date—5th June, 1937. Conductor—S. Henry.

On this excursion the members visited the wild, yet lovely, valley of Glenshesk, which pursues its romantic way between the mountains of Knocklayde and Croaghan until it reaches the sea at the ancient Abbey of Bonamarghy.

After passing through Ballymena the first stop was at Knockahollett, a pre-historic earthwork on which the Normans, when consolidating their authority in the North, had erected a moat and bailey castle. This site occupies a very commanding position and is a landmark for many miles around. In 1934 two earthenware urns were discovered here, which are now in the Belfast Museum. Their discovery is another proof that the Normans utilised ancient earth-works as sites for their castles.

Proceeding onwards Armoys was soon reached. Armoys, the word meaning "the eastern plain," was once an important place in the ancient territory of Dalriada. The church was founded by St. Patrick, who having baptised Olean placed him over it. The date of its foundation is given as A.D. 474.

At the Round Tower the Honorary Secretary (J. Skillen) gave a talk on round towers, the Armoys one in particular, pointing out that this tower only stands about half its original height.

The Armoys tower is presumed to be one of the earliest erected; this is shown by the rubble masonry and the arch over the doorway, which is cut out of one solid block of stone. Its erection was probably in the 10th or the 11th century.

Proceeding down the valley the next stop was at Goban Saer's Castle. This building is really an ancient church, but nothing much being known about it the peasantry attributed its erection to Goban Saer, the mythical smith, or builder, of the Tuatha de Danaan. This half-hero, half-god, may be compared to Weyland the Smith of English folk lore.

At Bonamarghy the Honorary Secretary gave a talk on the Friary, which was founded by Roderick M'Quillan in A.D. 1500 for the Third Order of Franciscans. It was compulsorily abandoned some considerable time after the dissolution of the religious houses, and the friars afterwards settled at Ardagh, where they had an existence on paper up to about 100 years ago. The building is now in the custody of the Ancient Monuments Committee after a considerable sum had been spent on its preservation by the Archaeological Section of the Natural History and Philosophical Society. It is worth noting that the abbey, in the high days of its prosperity, was much resorted to by the Highlanders of the Isles, kinsmen of the MacDonnells, who came annually in large numbers to the famous Lammas Fair at Ballycastle, a function that lasted for many days.

From Bonamarghy the members proceeded to inspect a hill fort at Fair Head which is now being excavated by Professor V. Gordon Childe, of Edinburgh University. At this place Professor Childe was in waiting and explained what had been done and what had been found during the progress of the work. It was good news to hear that a full description with plans was to be published in the new "Ulster Journal of Archaeology," which is shortly to appear.

Tea was served at Cushendall, the members returning to Belfast by the beautiful Coast Road.

CASTLEWELLAN.

Date—26th June, 1937. Conductor—Miss M. Gaffikin.

For this excursion permission had been kindly granted by the Hon. Gerald Annesley to visit the demesne and gardens at Castlewella, and on arrival the head gardener was in waiting to conduct the members around. The fruit and vegetable garden was first visited with its high enclosed wall of warm coloured brick. Here vines were growing in the open and showing a promising harvest of grapes.

Afterwards the lake was visited, and the botanists of the party took an opportunity to examine the flora surrounding its shores. On leaving the demesne what is known as "The Big Fort" was visited. This is a rath, or perhaps should be called a dun, of imposing size. The fosse is from fifteen to twenty feet deep in places and the top of the fort covers a considerable area. A ramp leads across the fosse to the interior, and this is probably not contemporary with the structure, but may have been made in more recent times for agricultural purposes, for on the hollow top of the rath there is at present growing a fine crop of corn. Nearby are the ruins of one of the old "but-an-ben" Plantation houses, which was examined with interest.

This was the usual house of the peasantry when the planters settled here. The houses were built of puddled clay for mortar, with field stones and roof thatched with straw. The "but" was the kitchen and living room and the "ben" was the sleeping place. In front of the house was the usual midden. The jamb wall, with its peaked-shaped opening, as a foil to the open door, had disappeared in this old house, but the corbels which supported the "haff-laft" were still there, as was the timber brace which supported the wide open chimney, up which the sky could be seen by

anyone sitting in "the chimney corner." Life had not deserted the mud-walled cottage, for swallows had built their nests under the ruined thatch.

At Newcastle tea was provided, after which the President (A. Albert Campbell, F.R.S.A.I.) returned the thanks of the members to the Hon. Gerald Annesley for permission to visit the demesne, and to Miss Gaffikin, who, acting as conductor, spared no pains in making the excursion instructive and enjoyable.

Miss Gaffikin having replied, the members returned home, in perfect weather, after spending a most enjoyable afternoon.

CONLIG.

Date—15th June, 1937. Conductors—A. H. Davison and J. J. Hartley.

At a quarry for road metal situated just below the Lead Mines, the alternating grits and shales of the Silurian rocks, together with fault-breccias, slickensiding, veins of quartz, and calcite were examined.

At the Mines a short talk was given on the Lead ores worked at Conlig about seventy years ago, and again in 1913 or 1914. The ore was most probably deposited along a N.-S. fault, sometime between the deposition of the Permian and the Carboniferous beds. Good crystals of quartz, barytes, dolomite, copper pyrites, iron pyrites, and calcite were collected, and also specimens showing slickensides and fault—brecciation.

The party afterwards visited the ancient Dominican Priory of St. Columba, founded by Walter de Burgo, Earl of Ulster, in 1244 A.D., the very picturesque ruin standing at the end of Court Street, Newtownards.

CARR'S GLEN AND CAVEHILL.

Date—29th June, 1937. Conductor—A. H. Davison.

The object of this excursion was to study the very comprehensive geological exposures as revealed in both the Glen and Cavehill.

(No report.)

KILLOUGH AND ST. JOHN'S POINT.

Date—3rd July, 1937. Conductors—Miss W. J. Sayers and Dr. R. Ll. Praeger.

The objective of the excursion was to examine the flora in this part of the coast in the interests of the new edition of the "Flora of North-East Ireland."

About 100 years ago Killough was a flourishing port, as the country round was a great wheat growing district. The repeal of the Corn Laws ended the trade to a large extent.

Some members took the rugged path by the shore to St. John's Point. There the remains of the ancient church which gives the place its name were examined. It is mentioned by Bishop Reeves that it was granted in A.D. 1183 by Malachi, Bishop of Down, to the Abbey of St. Patrick's. Malachi is the outstanding Churchman of medieval times, and was in succession Abbot of Kells (County Antrim), Bishop of Down, Primate of Ireland, and ended as a monk in St. Comgall's Abbey, Bangor, County Down.

The following are among the rarer plants which were particularly looked for:—Samphire (*Crithmum*), Oyster-plant (*Mertensia*), Fenugreek (*Trigonella*), Sea Wormwood (*Artemisia maritima*), Sea Radish (*Raphanus maritimus*), Soft Knotted Trefoil (*Trifolium striatum*), Slender Yellow Trefoil (*T. filiforme*).

CORK AND DISTRICT.

Date—9th-14th July, 1937. Conductors—A. M'I. Cleland and Dr. M. Grimes. Number present, 33.

The members reached Cork late on Friday night, 9th July, headquarters being the Metropole Hotel, and next morning,

Saturday, 10th July,

Dr. M. Grimes, M.R.I.A., the local conductor, joined the party, and by 9.30 the bus left for Little Island, the first halt, a short run of $5\frac{1}{2}$ miles.

The objectives here were the quarries in Carboniferous Limestone to be seen on the seaward side of the island. Some of the quarries are still being worked, the stone, so far as could be judged, being mainly wrought into screenings for road purposes.

At one abandoned quarry "red marble" (Carboniferous Limestone stained by infiltrations of iron) was seen, but access was too difficult, so that it was not possible to examine the "marble" in situ. However a large block of the material was found on level ground overlooking the quarry, and from this specimens were obtained. It is a very hard and compact material, full of white streaks, and takes a high

polish. On the Golf Links and at the Quarries quantities of Teasel (*Dipsacus silvestris*) were observed. Also Wild Madder (*Rubia peregrina*); tiny Blue Flax (*Linum bienne*); and common Carline Thistle (*Carlina vulgaris*).

From Little Island the route led to Rostellan (a run of 18 miles), going by Midleton, where a fair was in full swing, presenting great difficulty in steering through cows, sheep, pigs and fowl.

From here the road ran along the east side of East Passage, by Saleen, to the main lodge of Rostellan Castle, a very beautiful portion of the route. Here all alighted and walked along a shady wood till within sight of the Castle.

Rostellan Castle is now quite unoccupied, the estate about it being in a very neglected condition, though in its prime it must have been a very desirable spot. In the Castle itself a good deal of finely wrought Cork red marble is to be seen.

Rostellan was originally a Hospitallery of the Knights Templars and was founded as such by a Norman knight, Sir Reginald FitzStephen, in the 12th century.

On the suppression of the Templars Rostellan became a Hospitallery of the Knights of St. John. Later it passed into the hands of the Fitzgeralds, Earls of Desmond.

During the Civil Wars of the 17th century Rostellan was owned by a Lady of the house of Fitzgerald who made it over to Murragh O'Brien, who subsequently became the first Earl of Inchiquin, and he and his descendants, especially the First Marquis of Thomond, transformed the Castle from a feudal stronghold into one of the finest 18th century country houses in Ireland, as it now remains.

On the shore near Rostellan is to be seen a fine dolmen, almost covered by the sea at high tide, and which affords evidence of relatively recent submergence of the coast in this neighbourhood. Two fine photographs of this interesting object were obtained.

From Rostellan a short run of $2\frac{1}{4}$ miles brought the members to Castle Mary, another beautiful estate, not so neglected as Rostellan and still showing many signs that it had seen better days. The Castle was destroyed during the time of the "Troubles," and the family now resides in a bungalow formed out of the old stables.

The objective here was the fine dolmen standing most picturesquely in the grounds. This is built of limestone blocks, the capstone being of immense size and very imposing.

Mounting the bus again a run of $7\frac{1}{2}$ miles was made to Ballycotton, which was seen in perfect atmospheric conditions. There was sufficient time for a stroll along the cliffs S. of the harbour, from which the whole coast was seen as far as Knockadoon Head, and beyond that to Ram Head on the far side of Youghal Bay, 15 miles away.

Here were observed Sea Radish (*Raphanus maritimus*) in abundance; pink and white Lady's Fingers (*Anthylus vulneraria*); Sea Bindweed (*Calystenia Soldanella*).

On the roadsides along the shores of Cork Harbour the Rose of Sharon or Large-flowered St. John's Wort (*Hypericum calycinum*) was found in abundance and seemingly naturalised (along with *Hypericum hircinum*). *Hypericum pulchrum* was very abundant. Black Mustard (*Sinapis nigra*) and Tree Mallow (*Lavatera arborea*) were also found.

On again, a short run of 6 miles brought the party to Cloyne, its Cathedral and Round Tower. The Tower (102 feet high) could only be examined and admired from a distance as, though it may be climbed, the floors are rather weak and it was not considered safe for so large a party to ascend.

At the Cathedral Dean H. F. Berry was waiting to conduct the members through and about the interesting building, drawing particular attention to the magnificent monument to Bishop Berkeley (1684-1753), philosopher, missionary and author. The monument was executed from the designs of Mr. Bruce Joy, and was erected in 1889 A.D. at a cost of £500.

The See of Cloyne was founded in 626 A.D. by St. Colman MacLenin, the present building dating from the 13th century and having a good E. window of five lights. The remains of St. Colman's Oratory are still to be seen in the churchyard. The length of the church is a little more than twice the height of the Round Tower, viz.: 206 feet.

A run of an additional $\frac{3}{4}$ mile finally brought the members to the Deanery, where Dean Berry and his family entertained them with true Irish hospitality.

Following this, after thanking the kindly Dean and his willing assistants, came a quick run of $18\frac{1}{2}$ miles to Cork, which was reached promptly at 7.45 p.m., the day's run amounting to $59\frac{1}{4}$ miles, the weather during the whole excursion having been perfect.

Sunday, 11th July.

No special arrangements had been made for Sunday, members being free to follow their own inclinations. Some went to Killarney by bus, greatly enjoying what they saw there. Others attended service at St. Finbarr's Cathedral or other places of worship.

Another party went to Crosshaven by bus, 11 miles away, a very picturesque run, especially when crossing the Old Red Sandstone ridge between the Tramore and Owenboy rivers and along the right bank of the latter from Carrigaline to Crosshaven.

The objectives of this visit were:—The Pre-Glacial raised Beach at Church Bay and the anticline in Old Red Sandstone S. of Weaver Point. Both these interesting sections were seen in excellent conditions.

The party soon came to the first section looked for and saw it as depicted on p. 37 of "The Geology of the Country around Cork and Cork Harbour" (1905)—the old rock platform, now raised above high water mark; the blown sand at the foot of the cliff of Old Red Sandstone; the Lower Head; Boulder Drift; and Upper Head. It was worth going a long way to see such a fine section. A. H. Davison secured an excellent photo of this exposure.

There was also seen the anticline in Old Red Sandstone (as illustrated on p. 9, by R. J. Welch, in the above "Memoir"), though this was not so striking as the Raised Beach, as such structures are not at all uncommon on the coast in this locality.

In the afternoon most of the members went down by river steamer to Queenstown (Cove) and East Passage, the weather being very bright and fair.

It is a most attractive trip down the Harbour, the banks high and well wooded, the river opening out to a width of $1\frac{1}{2}$ miles at Lough Mahon and contracting to a quarter mile at West Passage, $2\frac{1}{2}$ miles in length. From Queenstown the south side of Great Island is hugged as far as the beautifully wooded East Passage (less than a quarter mile

and a mile and a half long), till finally the journey ends at the pretty little village of East Passage Ferry.

Tea was taken at East Passage Ferry, after which a small party walked up a hill for a mile and a half inland, getting good views and also meeting a light misty rain, as the wind had brought up clouds. This became heavier as Cork was neared again, and the latter part of the trip was rather dreary, particularly as Cork was not reached till after dark.

The run by steamer to Queenstown is $10\frac{1}{2}$ miles, with an additional 5 miles to East Passage Ferry, making $15\frac{1}{2}$ miles in all, or 31 for the whole trip which, in spite of the rain at the latter end, was most enjoyable.

Monday, 12th July.

The bus set off promptly at 9.0 a.m. in the same beautiful weather, the first halt being at Castle Martyr, at one time the residence of the Earls of Shannon, 18 miles E. of Cork, passing through Middleton, calmly sleeping after the excitement of Saturday's fair, and pulled up at the Castle gates just at the entrance to the village.

The Castle and grounds are now in the hands of the Carmelite Fraternity, who have a large school here. Father Celestine (the Brother in charge and residence) proved to be a genial hearty individual, middle-aged, with a keen sense of humour and a hearty laugh. He at once guided the party to the ruins of Imokilly Castle (close by) and also took the members through the school buildings. He brought out packets of postcards, for which there was a ready sale, and presented each member with a type-script account of the history of Castle Martyr.

Imokilly Castle, the former home of the Fitzgerald family, is a place of great strength and beautifully situated. The school of the Carmelite Brothers is housed in the former mansion of the Earls of Shannon. A branch of the Kiltha river flows through the grounds and near the Castles (old and new), making a very beautiful picture with lilies and swans floating on its surface. The old ivy covered ruins of Imokilly are also very fine, giving marvellous all round views from its lofty central tower.

Bidding a cordial farewell to Father Celestine the next halt was at the village of Killeagh, $3\frac{1}{2}$ miles N.E., at the entrance to Glenbower Wood, through which runs the Dessour river. Here the botanists had a great time wander-

ing among the bye-ways of this beautiful estate, which is now in the hands of the Forestry Department of the Free State.

Killeagh was left, and then followed a delightful run of 11½ miles to Templemichael Castle on the banks of the Blackwater, sometimes referred to as the "Irish Rhine," entering Co. Waterford at Rincrow. The run up the Blackwater was exquisite, and Templemichael Castle an ideal place for lunch. Here the flies gave a truly Irish welcome!

Templemichael Castle and Church stand at the junction of the Glandire river with the Blackwater. The Castle is in ruins, as is also a much later mansion close by; both are ivy covered and most picturesque.

A quick run was made to Ardmore, 10 miles S.E., crossing the Blackwater flats by the mile-long Youghal bridge, and so again entering Co. Waterford.

At Ardmore a wealth of interest awaited the archaeologists. St. Declan's Church, Well, Oratory and Stone were first inspected; then the roofless Cathedral and the 12th century Round Tower, where a refreshingly cool breeze was met. In the E. transept of the Cathedral an Ogham Stone proved of great interest.

St. Declan is stated to have flourished early in the 6th century and to have evangelised S.E. Ireland in pre-Patrician days.

On the shore the geologists were pleased to observe at least two very good examples of anticlines, the ridge of one of them being turned into a concreted causeway leading to the harbour. They also saw St. Declan's Stone, beneath which the devout were wont to crawl, with much discomfort, on his Feast Day. This is the stone that conveyed St. Declan's bell from the far off coast of Wales, where it had been left by a careless disciple. It almost sounds impious to point out that the stone is a mere Glacial Boulder!

A quick run from Ardmore to Youghal (8½ miles) brought the party to the Devonshire Arms Hotel and tea! The hotel was once the Town House of the Dukes of Devonshire, and has an immense range of outhouses and a fine garden laid out in three terraces on the slope of a hill, with beautiful views over Youghal Bay.

Tea over, Dr. Grimes led the members through Youghal to inspect some of the many old buildings the town possesses. These included the Clock Gate, built on the site of the old

South Gate; the Water Gate, which is in perfect condition and as it stood when Cromwell passed through it to spend the winter of 1649-50 in Youghal; the Town Hall, where the Town Clerk showed some very interesting old records; the Quays, where the extensive and dilapidated stores and warehouses attest the former greatness of Youghal; the site of an Abbey founded in 1231 A.D.; Tyntes Castle, nearly opposite; Myrtle Grove (outside only), which once belonged to Sir Walter Raleigh, and where he is said to have planted the first potato and smoked the first tobacco after his return from Virginia, which he founded in 1607 A.D. Sir Walter was Mayor of Youghal in 1588-9 A.D. Adjoining Myrtle Grove was seen the beautiful and interesting Collegiate Church of St. Mary, the woodwork of which is said to be of the 13th century. There was a church on the site before the coming of the Normans, and some of the pillars of the nave rest on old tombstones.

The party ascended the massive tower of the Church, known as Cromwell's Tower, from which grand views of the surrounding lands and sea were enjoyed, and more especially the buildings and grounds of Myrtle Grove, where Dr. Grimes pointed out the particular yew tree under which Raleigh often sat with the poet Spenser.

Promptly at 6.0 p.m. the bus was mounted again, and the run back to Cork made without a stop (30 miles), the hotel being reached on time at 7.45 p.m.

This day's run amounted to $81\frac{1}{4}$ miles, the weather throughout being quite exceptionally fine.

Tuesday, 13th July.

The " Official Programme " was thrown overboard on this day, owing to the unanimous wish of the members that the day's run should be extended to Glengarriff, instead of terminating at the head of the Pass of Keimaneigh, as originally intended, the members being quite willing to pay the extra charge this extension demanded. The Hotel was left punctually at 9.0, in weather which continued good for practically the whole day.

The outward route led up the left bank of the Lee as far as Macroom (passing close to the picturesque Inishcarra church), where a halt was made to inspect the castle.

At Macroom the Lee was left for a time, coming in again at Inchigeelagh and passing on the way Castle Carrignaneelagh and Castle Carrignacuvagh. At Inchigeelagh,

Lough Allua come into view and was on the left for $3\frac{1}{2}$ miles. This lough is really a series of small loughs through which the Lee winds its tortuous way, giving many fine panoramic views.

At the head of Lough Allua the road crossed the Lee and took the right hand bank till it reached a road on the right leading to Lough Gougane Barra, where a short halt was made.

The foot of the Pass of Keimaneigh is at this point, up which the party ascended for the next mile and a half. The pass is very narrow, wild and rocky, its summit being 662 feet above sea level. As the Pass was entered a slight mist was met, which continued all the way to Glengarriff, but only added to the grandeur of the Pass.

The road now went down the right bank of the Owenane river, which was crossed at Ballylichy Bridge, and soon reached Glengarriff, where two hours were spent. Entering Glengarriff the wind blew the mist away, the sun broke out and Glengarriff was seen in all its famed beauty, the Sugar Loaf Mountain (1,887 ft.) standing out magnificently.

Glengarriff was left with great regret, the Pass (which looked even better in the afternoon light) again ascended and descended, and by 4.0 p.m. the members reached Cronin's Hotel on the shore of Gougane Barra Lough. Tea was not ready, though the proprietor had had ample notice of the hour of arrival; so while two maids were running about like agitated cats, making hasty arrangements for the comfort of the party, the members strolled along to St. Finbarr's Chapel on an island connected by a causeway to the mainland, St. Finbarr being the tutelary saint of Cork.

Tea was a very merry meal. It was not even ready when the party returned, the two maids still very busy raking cups, saucers and plates from cupboards and shelves; heaving plates piled high with white or brown bread or great slabs of cake on to each table, plying everyone with endless cups of tea, or hurrying up fresh supplies of butter or jam.

After tea the members walked towards the head of the Lough, which is within a mile of the border of Co. Kerry, but separated from it by a ridge of Old Red Sandstone 1,764 ft. high, which comes down to the head of the Lough in a series of gigantic cliffs. Here a very strong cold wind was met rushing down from the cliff tops and was found to be very refreshing.

At this locality the botanists found Irish Spurge (*Euphorbia hiberna*) with its beautiful red-tinted foliage; and at Glengarriff London Pride (*Saxafraga umbrosa*) was plentiful; the Royal Fern (*Osmunda regalis*) was also much admired.

A straight line was made back for Cork, taking the right bank of the Lee at Coachford, and reaching the Hotel at 7.45 p.m., again on time. Indeed in all the runs Dr. Grimes kept well up to time, and yet no one had a sense of being hurried.

The total run this day was 144 miles, the four days' run being in all 317 miles.

Wednesday, 14th July.

At 9.30 a.m. Dr. Grimes took the members to the University, where they saw much that was interesting. The University occupies spacious and well-planted grounds on the banks of the river Lee. Part of it is erected on the site of an old monastic school founded by St. Finbarr. It is built of white limestone in the Tudor-Gothic style.

Adjoining the Dairy Department (which is under the control of Dr. Grimes) are plant beds where all herbs affecting cattle and their milk, for good or evil, are named and their effects set out. The Naturalists were full of admiration for the careful and painstaking manner in which the grounds are laid out. Every plant appears to be well kept and clearly and distinctly named. The whole grounds are really a model Botanic Gardens with Plant Houses. On the wall of the grounds Wall Lettuce (*Lactuca muralis*) was well established.

Before entering the University the President (A. A. Campbell) expressed the thanks of the B.N.F.C. to Dr. Grimes for all he had done for the visitors. This was seconded by Miss W. J. Sayers and passed unanimously. Dr. Grimes suitably replied and stated that he was sorry that the visit was at an end.

So ended the Long Excursion of 1937, leaving behind it very pleasant memories of much kindness freely offered.

PORTMUCK AND BROWN'S BAY.

Date—24th July, 1937. Conductors—A. M'I. Cleland.
Number present, 35.

This was a combined Botanical and Geological excursion by motor bus, made in perfect weather.

At Portmuck Harbour the members walked across to the shore overlooking Muck Island, to examine the chalk

platform exposed here with its line of chalk cliffs. The shore here seems to indicate that the beach has been raised.

The considerable remains of the old Castle, to be seen at the Island side of the Harbour, were also examined. These include what appears to have been the Water Gate of the Castle, now considerably raised above high-water mark.

The next halt was at a point near McIlroy's Port, where a 40-foot fall drops directly into the sea, its sides lined with magnificent festoons of Monkey Flowers (*Mimulus Langstorfii*), a truly beautiful sight.

Stopping at Brown's Bay for tea, the party halted at Ballylumford, to inspect the quarry in interbasaltic beds at one time worked by the late Dr. Ritchie for iron ore.

The final halt was made at the Druid's Altar, overlooking Larne Harbour, now divested of its clinging ivy, Belfast being reached again at 9.0 p.m., promptly on the time arranged.

CARNLOUGH, GARRON POINT AND STRAIDKILLY.

Date—21st August, 1937. Conductor—J. Skillen.

On this excursion the members went by the hilly district north of Ballyclare, across the valley of the Glenwherry River and by road to Carnlough.

The first stop was at Rathshee (the rath of the fairy). There in the graveyard the President (A. A. Campbell) related how the ancient church had been founded by St. Patrick, and had been a Bishop's See for many years. The annals mention only one bishop, of the year 617. Prior to the 1641 wars it was reported as ruinous.

The next stop was on the banks of the Glenwherry River at the Pigtail Bridge. This valley and district was the refuge of Covenanters who fled from Scotland during what have been called "the killing times," chief of whom was Alexander (Prophet) Peden. It is also the scene of Sir Samuel Ferguson's poem "The Ballad of Willie Gilliland."

Hence the route followed the slopes of Tuftarney Mountain (750 feet). Unfortunately the visibility was poor, a mountain mist obscuring the magnificent view which can usually be seen from there.

Soon was reached the peaceful and pastoral hamlet of Buckna, where flax-pulling was in full swing. After a short stay the road was again taken for "The Sheddings," the party stopping on the way to inspect a cashel at Casheltown.

This stone fort is in perfect preservation. It has enormously thick walls built of field stones, as are the dykes crossing the fields in every direction.

Shortly afterwards Carnlough Glen was reached, and as the visibility had improved the view down the Glen and out to sea was exquisite.

After lunch at Garron Tower some members made their way to the headlands by "My Lady's Walk" and others visited Dummull, the great promontory fort, a notable feature at Garron Point.

On the return by the coast road a stop was made at Straidkilly, known as "the slipping village," the slipping due to the presence of the underlying Lias clays.

Ballygalley Castle has as an adjunct a modern hotel, built by Lord Antrim. Mr. J. J. Wall, J.P., agent for the Antrim estate and a member of the Club, met the party there and pointed out the interesting features of the Castle and bawn. The bawn with its three outflankers has been preserved as when built, possibly owing to the fact that it had been used as the Castle garden. The Castle's interesting stone spiral staircase and the beautiful stone doorway with its date 1625, and inscription "God's Providence is My Inheritance," will be preserved for all time, as well as the unusual musketry portholes for guarding the door.

Tea at Larne terminated the excursion.

KILROOT, BELLAHILL, BALLYCARRY AND RED HALL.

Date—4th September, 1937.

This was a combined Archaeological and Botanical excursion in which much interesting work was done in both branches of above sciences.

(No report.)

CONFERENCE EXCURSIONS.

Date—24th-26th September, 1937. Conductors—A. A. Campbell and J. Skillen.

The following Excursions and Meetings were made in connection with the Sixth Annual Conference of Field Clubs, held in Belfast on above dates:—

Friday, 24th September. The Conference met at the Museum and Art Gallery, Stranmillis Road, at 4.30 p.m., where the visitors were conducted through the various

galleries. The meeting was then adjourned till 6.30 p.m., being resumed at the *Conversazione* held in the Assembly Buildings, Fisherwick Place.

Saturday, 25th September. On this day the members made a very comprehensive archaeological excursion through the Ards Peninsula, visiting the following among other places:—Grey Abbey, founded in 1193 A.D.; Ardkeen Castle, erected in 1180 A.D., one of the strongholds of the Savage family; the ancient church of Slanes with its holy well; the stone circle at Millin Bay; and Portaferry Castle and Templecranny Church.

A meeting was held in Museum Buildings, College Square North, at 7.30 p.m., where addresses were given by various members on club co-operation.

Sunday, 26th September. In the afternoon the members visited Nendrum (Island Mahee) and Downpatrick.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session opened with a *Conversazione* held in the Assembly Buildings on Friday, 24th September, 1937, an earlier date than usual, arranged so as to coincide with the Annual Conference of Field Clubs meeting at the same time. There was a very large attendance of members and friends, Tea being served from 6.30 till 7.45 p.m.

The Exhibits included:—

BOTANY.—A. M'I. Cleland, Giant Puff Balls (Dundonald); Miss E. M. Scott, 35 specimens of wild fruits, Dr. Lynn and Miss Kertland, exhibit from Queen's University; Rev. W. R. Megaw and Roy Guiler, Mosses; Miss W. J. Sayers, specimens of water plants from our district; E. N. Carrothers, Local Plants; A. H. Davison, Living Fruits and Seeds; C. D. Chase, a few Flowers from Greece; J. W. Porter, a collection of British Heaths; Thomas Greer, *Equisetia*.

GEOLOGY.—A. M'I. Cleland, Zeolites (Craighulliar); Green Granite (Rostrevor); Marble (Cork); Colloidal Silica (Saleen); Colloidal Silica (Cloyne); Jasper in Porphyry (Cushendall); Cone-in-Cone Anthracite (S. Wales); Marble

(Kerry); Mina Davison, semi-precious Stones; Alex. H. Davison, introduction to Geology of Belfast; Herbert S. Black, Fossil Plants from Fifeshire.

ZOOLOGY.—A. M'I. Cleland, Wasps' Nests and Wasps (Knock); C. D. Deane, habitat group of Moorland animals; Louis J. Mason, some Butterflies and Moths of Northern Ireland; some Dragonflies of Northern Ireland; D. J. Carpenter, Land and Fresh-water Shells; W. M. Crawford, Indian Butterflies; case of Tyrone Water Beetles; Belfast Municipal Museum, the Blackbirds and Blackbird varieties; Subalpine Warbler from The Maidens Lighthouse (first Ulster example).

ARCHAEOLOGY.—The President, Irish Socketed and Flat Bronze Celts; Swedish Flint Axe; Harry P. Swan, collection of Gold Ring Money (Ireland, *circa* 1000 B.C.); collection of Irish Bronze-age Pins; Miss M. Gaffikin, A. M'L. May and Angus MacDonald, exhibits of finds from Sandhill sites, etc., Dundrum, Casterock, Whitepark Bay, Donegal; Miss M. Gaffikin and Angus MacDonald, Models showing methods of excavation of typical Horned Cairns, based on Browndod (Co. Antrim); A. M'I. Cleland, Pottery and Pumice (Dundrum); J. A. S. Stendall, Model of an Irish Watermill.

PHOTOGRAPHY.—A. M'I. Cleland, various photographs; Miss L. Rea and Mrs. Crozier, Archaeological photographs (including original finds) taken during a holiday at Cushendun; C. D. Deane, photographs of Animal Life including flashlight studies of wild Badger taken at night; Snips from Birdland, unedited film of the habits of our commoner birds; mounted specimen of Fulmar Petrel from Whitepark Bay; May L. Dunlop, photographs of Irish scenery; Miss Dorothy M. Malet, Three Framed Sketches: Ardmore Round Tower, Castle Mary Dolmen, Rostallan House; A. R. Hogg, a 48 inch photograph of Hazelwood and Floral Hall including M'Art's Fort and Cavehill.

MISCELLANEOUS.—Miss Mawdsley, Old Lace; Miss Warnock, Books (Two Elzevirs); Picture of Derry (1839).

JUNIOR DIVISION EXHIBITS.—Miniature garden; book of flower paintings, May E. Beek; Models, etc., illustrating prehistoric progress; pressed flowers, Felicity Bolton; British and Foreign butterflies and moths; chrysalids; insect mimicry; tableau of summer insect life, Vivian Gotto; land and freshwater mollusca of Co. Dublin; collection of

marine mollusca of Dublin Bay, Noel Gregg; model—longitudinal section—of souterrain at Dunalis, Patricia Macmahon; waterbeetles and dragonflies, Cyril E. K. Mason; models—"A Holy Well" and "An Irish Sweat-house;" fossils, Jean M'Veigh; fruits; fossils and rock specimens, Dorothy and Edna Nelson; wild flowers collected during first year of membership, Jean Petticrew.

R.B.A.I. Natural History Society under the direction of T. C. C. Adam, M.Sc.—Geological specimens, G. B. Duffin; seaweeds and mosses, R. A. Guiler; flowers, R. D. Meikle; plaster casts; moths and butterflies, D. H. and M. N. Rankin; drawings, R. G. Sellar; moths and butterflies, T. C. Shaw; collection of fruits, L. S. Stendall; autumn fruits, berries, seed pods, etc.; skulls, H. B. Barry, R. N. Beck, J. H. Jeffrey, S. T. Kidd, J. C. M'Robert, I. W. Rea and R. W. Thompson.

The Junior Division prize winners were as follows:—

Botanical exhibit—1, R. A. Guiler (mosses and seaweeds); 2, Mary E. Beck (miniature garden books of flower paintings).

Zoological—1, D. Rankin (plaster casts of bird tracks); 2, N. Rankin (butterflies); certificate, Noel Gregg and Audrey Nelson.

Geology—1, Brice Duffin (elementary geology); 2, Jean M'Veigh (fossils).

Archaeological exhibit—1, Felicity Bolton (models illustrating prehistoric progress); 2, Patricia Macmahon (souterrain); certificate, Jean M'Veigh.

Special prize, exhibit by member under 13 years of age—C. E. K. Mason; special prize, plant competition—M. Lauder.

Certificates awarded to members of R.B.A.I. Natural History Society—L. S. Stendall, H. B. Barry, and T. S. Shaw.

In handing the prizes to the successful competitors, the President (A. A. Campbell, F.R.S.A.I.) said he extended a welcome to the members of the affiliated clubs and thanked the exhibitors, many of whom had gone to considerable trouble in arranging specimens, which were of great interest to their fellow-members. The Junior Division had been very energetic during the summer, and they were delighted to see the splendid exhibits that had been brought forward. One geological exhibit in the section was really wonderful.

The President then announced, amid applause, that the Committee had unanimously awarded the Club's Commemorative Medal to Rev. W. R. Megaw, B.A., M.R.I.A., for his splendid work in the science of Botany, coupled with his long continued efforts on behalf of the Club, of which he had been a member since 1917. (See p.).

A very successful evening was brought to a close by an exhibition of lantern views of places visited during the summer excursions.

“ OURSELVES: THE STORY OF THE CLUB.”

The first ordinary meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 16th November, 1937, at 8.0 p.m., when the President (A. Albert Campbell, F.R.S.A.I.) delivered his inaugural address.

Introducing his subject, Mr. Campbell said he would try to help his fellow members to visualise the time and place in which the Club was born, its nurses in infancy, its tutors in adolescence, and some of its achievements when it reached maturity.

In 1863 the world was in its usual state of unrest, and the various causes of international bitterness in those far-off days were glanced at. The changes in the dress and habits of the people were touched on and illustrated by coloured slides. Belfast of that time was described—no telephones, no trams, no taxis, no safety bicycles, no public parks, no Royal Avenue, no Botanic Avenue, no Lombard Street, no Albert Memorial, etc. The most prominent man in the town was John Rea, the “ Orange-Fenian ” Police Court Attorney.

The intellectual life of the town was confined to a very narrow circle, and the change brought about by the advent of Ralph Tate as a lecturer on natural history was emphasised. The story of the newspaper correspondence suggesting the formation of a Field Club was told in detail, and some account was given of the men who took a principal part in establishing the new organisation, and those who in after years occupied its presidential chair or were otherwise prominent workers in its ranks:—Canon Grainger, S. A. Stewart, Hugh Robinson, W. H. Patterson, Thomas Workman, William Gray, Sir Wyville Thomson, George C. Hyndman, Professor James Thomson (Lord Kelvin's elder brother), John Anderson, Canon M'Ilwaine, William

Swanston, Francis Joseph Bigger, Nevin H. Foster, Robert J. Welch, Robert Bell, Joseph Wright, Hugh Lamont Orr, Nathaniel Carrothers, and many others. In most cases their portraits were shown on the screen.

Various outstanding events in the history of the Club were narrated, and the President closed by expressing the opinion that so long as the Club encouraged a love of nature in men and women immersed in the cares and responsibilities of the workaday world, so long as it welcomed to its membership people of all classes, all creeds, all shades of political opinion, and afforded to them a common meeting-place where, in the study of nature and of the records of man, they could cultivate a spirit of mutual helpfulness, forbearance, and good fellowship, so long would it continue to flourish.

Appreciation of the address, on behalf of the meeting, was conveyed to Mr. Campbell by Rev. W. R. Megaw, M.R.I.A., and George C. Reilly.

THE EVOLUTION OF BELFAST AND ITS REGION.

The second meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 7th December, 1937, at 8.0 p.m., when a lecture on above subject was delivered by Mr. E. E. Evans, M.A., F.S.A., illustrated by lantern views and a number of large diagrams.

The growth of Belfast, the lecturer said, was largely the result of the industrial revolution, but its site was determined by local factors, and the town had already gained much importance and cultural distinction during the days of water-power and Colonial trade in the 18th century.

The setting of the city was described in detail, and special significance was attributed to the belts of sandy soils which provided early routes meeting at the ford of the Lagan. The remarkable concentration of streams at this point was shown to be a factor encouraging early settlement and favouring the construction of water-mills when linen manufacture came to the fore.

A series of maps illustrated the early zones of settlement from prehistoric times down to the coming of Christianity and other introductions from overseas which culminated in the Plantations.

The covering over of the Pound river to give the modern High Street provided the city centre with a broad street capable of carrying increasing traffic, but a supplementary

road (Waring Street) was built to the docks. Industrial activities later spread along the streams to the west and around the port on both sides of the river.

The industrial and social geography of the city was shown to be related in many ways to the landscape and to the spread along ancient roads from which the districts of the city still take their names. The lecturer also hinted at some possible developments which would enhance the reputation of the city.

A discussion followed in which A. H. Davison, J. Skillen and J. M. Capper took part, and at its conclusion a vote of thanks, proposed by J. A. S. Stendall and seconded by W. M. Crawford, was passed with acclamation.

GEOLOGICAL EVENING.

The third meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 18th January, 1938, at 8.0 p.m., when two papers were read, as noted below, the President (A. A. Campbell) in the chair.

Geology and Water Supply, by R. E. L. Clarke, B.E.

Some Geological Features of Cork and District, by A. M'I. Cleland.

Both papers were well illustrated by lantern views.

In his paper Mr. Clarke stressed the importance of a pure and sufficient water supply to the community.

The Mourne reservoir was an exception to the rule that reservoirs were usually situated in the older palaeozoic rocks.

Speaking of the dangers of accidental pollution he said that special care was required where water was drawn from a catchment area situated in a limestone district, as in Croydon. Many people, he added, preferred well water to "town water" on account of custom and taste. "Town water," however, was more reliable.

The new red sandstone ranked next to the chalk in the abundance of its yield of water. This rock was very pervious and absorbent. Exposures in Northern Ireland in the Lagan and Dundonald valleys contained many successful wells. Belfast's high reputation for the manufacture of mineral waters was largely based on the possession of this splendid source of water.

The semi-artesian well sunk into the triassic sandstone under Lisburn had proved a great success. Such a supply

would be practically inaccessible to gas contamination in case of air raids.

The author paid tribute to the work carried out by the Geological Section of the Belfast Field Club, and referred particularly to the work of the late Robert Bell, Prof. Charlesworth, and Messrs. J. J. Hartley, A. H. Davison, and A. M'I. Cleland.

In his short paper on the "Geology of Cork," A. M'I. Cleland dealt chiefly with the geological features observed during the Club's Long Excursion in July last and those noted on a subsequent visit he had made to the same district in the following August.

PEAT INVESTIGATION AND POLLEN ANALYSIS.

The fourth meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 1st February, 1938, at 8.0 p.m., when Miss M. Patricia Kertland, M.Sc., read a paper on above subject, illustrated by lantern views.

[No Abstract.]

QUERY NIGHT.

The fifth meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 15th February, 1938, at 8.0 p.m., when the evening was devoted to the asking and answering a great variety of questions on scientific subjects.

This was the second "Query Night" meeting the Club has held, and was most successful, the members unanimously agreeing that "Query Night" should find a place on the programmes of all subsequent Winter Sessions.

SOCIAL HABITS OF BIRDS.

The sixth meeting of the Winter Session was held on Tuesday, 1st March, 1938, at 8.0 p.m. in the Museum Buildings, College Square North, when Mr. C. D. Deane read a paper on above subject, beautifully illustrated by many fine lantern views of his own taking.

In the course of his interesting paper Mr. Deane dealt with the problems of bird ecology, and said that by instinct birds were gregarious creatures, but owing to sex impulses, factors concerning food, environment, etc., many lead a solitary life. He dealt with the different aspects of the individual in relation to the flock and in connection with migration, and produced several new arguments concerning the territory theory and the question of bird song.

ZOOLOGICAL EVENING.

The seventh meeting of the Winter Session was held in the Zoology Department, Queen's University, on Tuesday, 15th March, 1938, at 8.0 p.m., when short papers were read by the following:—

“Symmetry in Animals,” by Prof. T. T. Flynn, D.Sc.

“Local Marine Boring Animals,” by G. Williams, M.Sc.

“Adaptations in the Crustacea,” by A. E. Needham, B.A.

All the above were delivered before a large and appreciative audience, and each was amply illustrated by comprehensive lantern views.

[No Abstracts.]

MUSEUM-MINDED SCANDINAVIA.

The eighth meeting of the Winter Session was held in the Museum Buildings, College Square North, on Tuesday, 5th April, 1938, at 8.0 p.m., when Mr. J. A. S. Stendall, M.R.I.A., read a paper on above subject, freely illustrated by his own lantern views.

As a preliminary Mr. Stendall commented on the high percentage of museums in Scandinavia, in proportion to the population, and of their diversity of character.

The Open-air Folk Park Museums owe their origin to the Swedes, that at Skansen, Stockholm, being the pioneer. Views of this latter were shown, followed by others of the Bygdoy Folkmuseum, at Oslo, and “Den Gamle By” (The Old Town) at Aarhus, Denmark. In Aarhus a complete town of houses, workshops, mills, schools, etc., has been reconstructed from buildings secured from their original sites throughout Denmark. The buildings date back to the 16th century and all are furnished to illustrate their utility during the days in which they flourished.

Various other museums, embracing antiquities, art and natural history, in Copenhagen, Gothenburgh, Stockholm, Oslo and Bergen, were reviewed; together with an account of the home of Linneaus in Upsala, Sweden.

In addition to the above lectures, etc., a course of five lecture-demonstrations on “Common Algae” was given during the Winter Session by Dr. Mary J. Lynn, D.Sc., in the Department of Botany, Queen's University.

ANNUAL MEETING.

The Annual Meeting was held in Museum Buildings, College Square North, on Tuesday, 26th April, 1938, the President (A. A. Campbell) in the chair. The following reports were presented:—

ANNUAL REPORT.

The Committee has pleasure in presenting the report for the seventy-fifth year, and wishes to congratulate the members on the continued vitality of the Club.

During the year 40 members were elected. Against this there was a loss, through death, resignations, and lapsed members, of 49, showing a decrease of 9. The membership now stands at 495.

The programme of the Summer Session was carried out in its entirety. All excursions were well supported and most successful, the attendances in every case being very satisfactory.

The various meetings of the Winter Session were held, with some slight alterations, as per programme.

In addition a course of five lecture-demonstrations on "Common Algae" was given during the winter in the Department of Botany, Queen's University, by Miss Mary J. Lynn, D.Sc.

We desire to put on record our best thanks to Dr. Lynn for the trouble taken in preparing and delivering these lectures of high educational value, and to the Vice-Chancellor for granting the use of the rooms, and also for permission to hold our Zoological evening on March 15th in the Zoology department.

To the Roll of Honorary Members have been added the names of Mr. and Mrs. C. R. Nodder, on their leaving for India. Mr. Nodder was a former President of the Club, and a keen botanist, and Mrs. Nodder for a number of years was a most efficient Secretary of the Junior Division.

It is with pleasure that the Committee reports that the new edition of the "Flora of North-East Ireland" will be published by the Club in the present year.

The Committee held eleven meetings during the year, the average attendance being 8 members.

From 24th till 26th September the Annual Conference of Field Clubs took place in Belfast. It had been arranged

that the *Conversazione* should be held earlier than usual to coincide with the dates of the Conference. Accordingly it was held on the first evening of the Conference, in the Assembly Buildings. The *Conversazione* was as successful as any in the past, the attendance being much larger than usual as a result of the presence of many members of the affiliated Clubs. The exhibits were extensive and interesting, the Junior Division again tabling a fine display.

J. SKILLEN,	}	<i>Hon.</i>
W. G. R. SKILLEN,		<i>Secretaries.</i>

OBITUARY.

R. R. Boyd.

Very Rev. W. P. Carmody, M.A.

James Cowie.

A. G. Cromie.

W. A. Jenkins.

Rt. Hon. H. M. Pollock, D.L., M.P.

Nelson Russell.

Dr. J. B. Stewart, M.D., L.R.C.P.

LIBRARIAN'S REPORT.

The exchange list has been maintained without any alteration during the year. A further batch of volumes has been bound in the Museum Library, so that the collection of books there is improving every year.

The list of Exchanges is appended.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF THE RECORDING SECRETARY.

The past year has not been noteworthy for any seasonal fluctuations in the appearances of the usual types of fauna or flora, but produced nevertheless some outstanding records of rarities.

The chief of these undoubtedly was the taking of a male Subalpine Warbler, *Sylvia c. cantillans* (Pall.) at The Maidens Lighthouse, off Larne, on 13th June. This little bird, readily identified by reason of its orange-coloured eyerings, struck the lantern in foggy weather and was killed. It is only the second Irish example (the first being from Hook Tower light, Co. Wexford), and the sixth for the

British Isles, the others being Scottish. Fortunately the Ulster specimen was secured, and is now in the Belfast Municipal Museum collection.

The Black Redstart, *Phoenicurus ochrurus gibraltariensis* (Gm.), was observed by two of our Junior Members—Neal and Denis Rankin—in April, 1937, on the slopes of Cave Hill. A further example of this uncommon visitor occurred near Cookstown towards the end of the year.

Mr. Thomas Greer, J.P., a Corresponding Member of the Club, in June took a small Plume Moth, named *Platylabus tesseradactylus* L., on the rocky moorland north-west of Cookstown. This micro. has only previously been obtained in the British Isles from Cos. Galway and Clare.

The most noteworthy plant find was that of *Scirpus nanus*, in the Bann Estuary, by Dr. Praeger.

All the foregoing are fully noted in *The Irish Naturalists' Journal*.

Botanists have been fully occupied during the year with field work preparatory to the issuing of the new *Flora*.

J. A. S. STENDALL, *Hon. Recording Secretary*.

REPORT OF BOTANICAL SECTION.

During the season the efforts of the Section were chiefly directed towards verifying old records of plant stations for the forthcoming Jubilee Edition of the "Flora of North-East Ireland."

The Section began the season's programme by spending an evening in the Municipal Museum, familiarising themselves with the appearances of "wanted" plants by studying the herbarium specimens. During the summer excursions were taken to Ballyalloley, Gawley's Gate and Draperstown, but a very much wider area was covered by small parties of workers, who were frequently under the guidance of Dr. Praeger.

Many of the numerous lakes of Co. Down were examined for water plants; the stations of the tiny Waterworts, *Elatine hexandra* and *E. Hydropiper* were carefully noted; a boat was taken to the island in Lough Neagh, where *Carex Buxbaumii* used to be found, and a final but vain search made for any surviving traces of that rare sedge. In order to ascertain the range of *Nasturtium Silvestre* the Quoile was followed up its course to Inch, wherever it was practicable to reach it.

W. J. SAYERS,	}	<i>Hon.</i>
W. R. MEGAW,		<i>Secretaries.</i>

REPORT OF GEOLOGICAL SECTION.

The first excursion took place on September 11th, 1937, to Scrabo, under the direction of Professor J. K. Charlesworth, D.Sc., who explained the mode or origin, and nature of the Triassic sandstone, pointing out current bedding, sun cracks, ripple marks, and lenticles of clay. Special attention was given to the intrusive dykes and sills. The chilled edges of the sills and their apophyses were studied, and the baking of the adjoining sediments noted. The transgressions of the sills across the bedding planes were pointed out, and evidence shown that the intrusions came from the North.

The second excursion, also conducted by Professor Charlesworth, was to Coalpit Bay, Donaghadee, where many fossils were collected from this very fossiliferous locality of Ordovician and Silurian Rocks, whose story our late member, Mr. W. Swanston, helped so much to unravel.

The third excursion took place on 5th February, 1938, to Helen's Bay, to examine a freshly exposed section of boulder clay, on top of which was a magnificent example of a raised beach. The section had been exposed as a result of the severe storms of the previous week. A. M'I. Cleland secured five excellent photographs of this fine exposure, which was soon greatly altered by the prevailing wintry weather.

It was during an unofficial excursion by members of the Section that J. J. Hartley discovered the inlier of Ordovician near Ballynahinch, on which a paper was contributed to the *Irish Naturalists' Journal*.

Dr. J. S. Loughridge reports that during a visit of the Zoological Section on 15th May, to Dunny Neil Island in Strangford Lough, a cliff of Boulder Clay was found undergoing erosion and leaving exposed many boulders from the following geological horizons, namely:—Silurian, Carboniferous Limestone from Castle Espie, Triassic Sandstone and Dolerite from Scrabo.

J. K. CHARLESWORTH,	}	<i>Hon.</i>
A. H. DAVISON,		<i>Secretaries.</i>

REPORT OF ZOOLOGICAL SECTION.

Two excursions were held in 1937. One was by boat from Killyleagh to Dunny Neil Island, in Strangford Lough, on the 15th May. Numerous nests of Terns were found on the shingle above high water mark, and a few nests

of Mallard Ducks, containing many eggs, were discovered underneath the vegetation.

The second excursion was held on the 29th May, conjointly with the Botanical Section, to Portmore and Gawley's Gate.

J. S. LOUGHRIDGE, *Hon. Secretary.*

REPORT OF ARCHAEOLOGICAL SECTION.

The Section held three excursions during the season, the first to Carrickfergus, on the 19th June, to inspect the improvements made by the Ancient Monuments Committee in the Castle, and the collection of medieval arms and armour now installed there. Before visiting the Castle a stop was made at the Parish Church, where the Rev. Canon Rutherford received the members and gave a full account of the history and archaeology of the ancient building.

The town hall was next visited, where the Chairman of the Urban District Council (Mr. John Campbell, J.P.) had the ancient charters, with the sword and mace, ready for inspection. The charter of James 1st of England and VI of Scotland was much admired for its workmanship and good condition.

The second excursion was held on 14th August to Lyle's Hill and Muckamore, calling on the way to inspect the horned cairn on M'Ilwan's Hill. This monument had recently been excavated by Mr. Ivor Herring and some students of the Royal Academical Institution. The forecourt has been restored, but the stone-lined graves had entirely disappeared before the work of investigation commenced.

At Lyles Hill, a site discovered by air survey, some preliminary excavation has been done, and Mr. E. E. Evans explained about the work already undertaken and what was in contemplation. His opinion was that this is one of the most important prehistoric sites in Northern Ireland. At the ruins of Muckamore Abbey a short stop was made when Mr. J. Skillen talked of what is known of the history of the abbey.

The excursion ended by a visit to Boghead souterrain, one of the most interesting in Co. Antrim. It is double storied and easy of access.

The third excursion was to Monkstown and Lisnalinchy on 18th September. Very little remains of the ancient ecclesiastical buildings of Monkstown. It has been claimed

that Fergus, King of Scotland, after whom Carrickfergus is named, is buried here. Lisnalinchy is a fine ringed fort of the mound type. It was probably used as a residence by the Kings of Dalaradia, their other residence being at Rathmore.

J SKILLEN,	}	<i>Hon.</i>
R. S. LEPPER,		<i>Secretaries.</i>

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

The Handbook of Antiquities, published by the Ancient Monuments Advisory Council, will appear within the next few months. This publication incorporates the work of the B.N.F.C. Survey of Antiquities, and full use has been made of plans and photographs for illustrations.

In Dr. Mahr's Presidential Address to the Prehistoric Society especial mention was made of the B.N.F.C. Survey as being an important undertaking in Irish Archaeology.

After a period of six years it is only natural that reports of monuments of archaeological interest are not coming in to the same extent. Several workers have written to say that they have exhausted their particular districts. Mr. M'Namara, however, continues to send in reports from the Ballynahinch area, and special credit is due to those indefatigable workers, Miss Rea and Mrs. Crozier, who have added several hitherto unknown antiquities to the list.

The Belfast Municipal Museum is undertaking the listing of Bronze Age Antiquities for Northern Ireland, and all members of the B.N.F.C. are asked to send in reports of any they may know of, and in this way assist in work of the greatest interest and importance.

M. GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

The Committee met three times during the year, and the number of members now stands at 101.

The following excursions and meetings were held:—

17th April: Geological Walk from Maze to Lisburn.
 1st May: Belvoir Park. 11th May: Evening excursion to Lagan. 22nd May: For Botany and Marine Zoology at Holywood and Cultra. 11th June: Cave Hill Quarry. 19th June: Holywood Hills and Dundonald. 21st Aug.: Armagh to visit Cathedrals, Observatory and Museum. 27th Aug.:

Belfast Castle Grounds. 23rd Sept.: Cave Hill to collect material for *Conversazione*. 24th Sept.: *Conversazione*. 6th Nov.: At Museum to examine prehistoric objects. 12th Nov.: Bird Lecture illustrated by slides and films. 12th March: Social Evening. 16th March: Talk at Museum on local history. 29th March: *Conversazione* at Friends' School, Lisburn.

A special prize presented by Miss W. J. Sayers on the Season's botanical work did much to foster interest in this subject, while the popularity of archaeology was demonstrated by the excellence and number of models exhibited at the *Conversazione*.

E. E. BARRY, *Hon. Secretary*.

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1935. No award.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.

Rev. W. R. Megaw joined the Club early in 1917, and has served it almost continuously as a member of Committee. He has been Honorary Secretary for Botany on many occasions and occupied the Presidential Chair during the session 1922-23.

But it is not for work done in the Club, however useful and important, that the Commemoration Medal is awarded; it is for work which materially benefits those sciences within the scope of the Club's interests.

In the science of Botany Mr. Megaw has long been a leading member, specialising in the moss group, and it is to him that Ulster scientists chiefly owe their present-day knowledge of these lowly cryptogams.

Mr. Megaw was elected a member of the Moss Exchange Club, Section II, in 1918, and when it and Section I were merged to form the British Bryological Society, in 1922, he became a foundation member of what is now one of the leading bodies of its kind in Europe.

To the Proceedings of the above Society Mr. Megaw has annually contributed the results of his researches in moss distribution, chiefly in Northern Ireland, though by no means confined to this area, as he has worked from time to time in other parts of Ireland, as well as in England, Scotland and Wales.

It has been Mr. Megaw's good fortune to find a moss new to the British Isles, in *Webera calcarea*, while he has added several species and varieties to the Irish list.

In connection with the forthcoming new Edition of the *Flora of N.-E. Ireland*, Mr. Megaw has undertaken to prepare the section dealing with both mosses and hepatics.

When the Second Supplement to the old *Flora* was compiled in 1923 by the late Sylvanus Wear, Mr. Megaw supplied numerous records among the flowering plants.

In recognition of his services to botanical science he was elected a Member of the Royal Irish Academy in 1929, and in the same year he contributed in the compilation of the R.I.A. "Report on Recent Additions to the Irish Fauna and Flora."

From the inception of the *Irish Naturalists' Journal* in 1925 Mr. Megaw has acted as Editor for botany and has contributed largely to its pages in his own sphere of scientific research.

LIST OF EXCHANGING SOCIETIES.

1936-37. 1937-38.

—	—	Barrow-in-Furness—Naturalists' F.C. and Lit. and Sc. Association.
1	1	Belfast—Committee of Public Museums and Art Gallery.
1	1	Committee of Public Libraries.
1	1	N.H. and Phil. Society.
—	—	Presbyterian Historical Society of Ireland.
1	—	Berlin—Zoologisches Museum der Universität.
1	1	Birmingham—N.H. and Phil. Society.
1	1	Bournemouth—Natural Science Society.
1	1	Brighton and Hove—N.H. and Phil. Society.
1	—	Bristol—Naturalists' Society.
1	1	Brussels—Musée Royal d'Hist. Nat.
—	—	Buteshire—N.H. Society.
—	1	Caradoc and Severn Valley—Field Club.
1	1	Cardiff—Naturalists Society.
—	1	Carlisle—Natural History Society.
—	—	Chester—Society of Nat. Sc., Lit. and Art.
—	1	Coventry—N.H. and Sc. Soc.
1	1	Down and Connor—Historical Society.
1	1	Dublin—N.F.C.
1	1	Royal Irish Academy.
1	1	Royal Society of Antiquaries, Ireland.
1	—	Royal Zoological Society of Ireland.
—	—	Dumfriesshire and Galloway—Natural History and Antiquarian Society.
1	1	Dundalk—County Louth Archaeological Journal.
—	1	Eastbourne—N.H., Photographic and Lit. Society.
—	1	Edinburgh—Geological Society.
1	1	Essex—Field Club.

1936-37. 1937-38.

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| 1 | 1 | Eton College—Natural History Society. |
| 1 | 1 | Frankfort—Senckenbergische Bibliothek. |
| — | — | Glasgow—Royal Philosophical Society. |
| 1 | 1 | Glasgow and Andersonian Natural History and
Microscopical Society. |
| 1 | 1 | Guernsey—La Société Guernésiaise. |
| — | 1 | Halifax, Nova Scotia—Institute of Science. |
| 1 | — | Hertfordshire—N.H. Society and F.C. |
| 1 | — | Isle of Man—N.H. and Antiquarian Society. |
| 1 | — | Isle of Wight—Natural History Society. |
| 1 | 1 | Leeds—Philosophical and Literary Society. |
| 1 | 1 | Leicester—Lit. and Phil. Society. |
| — | — | Leyden—Rijks Ethnographisch Museum. |
| 1 | — | Liverpool—Geological Society. |
| 1 | — | Naturalists' Field Club |
| 1 | — | Llandudno, Colwyn Bay and District—Field
Club. |
| 1 | 1 | London—British Association. |
| 1 | — | British Museum. |
| 1 | 1 | Geologists' Association. |
| 1 | 1 | Linnean Society. |
| 1 | 1 | Natural History Society. |
| — | — | Manchester—Geological Association. |
| 1 | 1 | Lit. and Phil. Society. |
| — | — | Microscopical Society. |
| 1 | 1 | Marlborough College—Natural History Society. |
| 1 | 1 | Mexico—Instituto de Biología. |
| — | 1 | Montevideo, Uruguay—Museo de Hist. Nat. |
| — | — | Newcastle-upon-Tyne—Natural History Society
of Northumberland, Durham and
Newcastle-upon-Tyne. |
| 1 | — | Northern Naturalists' Union. |
| 1 | — | Northern Naturalists' Union. |
| — | 1 | University of Durham. |
| 1 | 1 | Norfolk and Norwich—Naturalists' Society. |
| 1 | 1 | North Staffordshire—Field Club. |

1936-37. 1937-38.

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| 1 | 1 | Northern Naturalists' Union. |
| — | 1 | Oxford—Ashmolean Natural History Society. |
| — | 1 | Perthshire—Society of Natural Science. |
| — | — | Plymouth Institution and Devon and Cornwall N.H. Soc. |
| 1 | 1 | Stavanger—Staats Museum. |
| 1 | 1 | Swansea—Scientific and Field Naturalists' Society. |
| 1 | 1 | Toronto—Royal Canadian Institute. |
| 1 | 1 | Torquay—Natural History Society. |
| — | 1 | Wellington, N.Z.—Royal Society of N.Z. |

U.S.A.

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| 1 | — | Boston, Mass.—Society of Natural History. |
| 1 | 1 | Chicago—Academy of Sciences. |
| 1 | 1 | Field Museum of Natural History. |
| — | — | John Crerar Library. |
| 1 | 1 | Cincinnati—Lloyd Library. |
| — | 1 | Madison, Wis.—Wisconsin Academy of Sciences, Arts and Letters. |
| 1 | 1 | Milwaukee, Wis.—Public Museum. |
| — | 1 | New York, N.Y.—Academy of Science. |
| 1 | 1 | Philadelphia—Academy of Natural Sciences. |
| — | — | Portland, Maine—Society of Nat. History. |
| — | — | Rochester, N.Y.—Academy of Science. |
| 1 | — | St. Louis, Mo.—Academy of Sciences. |
| 1 | 1 | Missouri Botanical Garden. |
| 1 | 1 | San Diego, Cal.—Society of Natural History. |
| — | 1 | San Francisco, Cal.—California Academy of Sciences. |
| 1 | — | Staten Island, N.Y.—Institute of Arts and Sciences. |
| — | — | Tuft's College, Mass.—Eaton Memorial Library. |
| 1 | 1 | Washington—U.S. Geological Survey. |
| 1 | 1 | Government Printing Works. |
| 1 | 1 | National Museum. |
| 1 | 1 | Smithsonian Institution. |

BELFAST NATURALISTS' FIELD CLUB.
HONORARY TREASURER'S ACCOUNT FOR THE YEAR ENDED 31st MARCH, 1938.
RECEIPTS AND PAYMENTS ON GENERAL ACCOUNT.

RECEIPTS.		PAYMENTS.	
Balance in Bank at 31st March, 1937	...	Printing and Stationery	£52 7 2
Subscriptions received during year :—		Postages	33 7 1
406 @ 6/- and 17 @ 3/-	£124 7 0	Incidentals, Secretary's Telephone,	
Arrears paid, 43 @ 6/-		Clerical Assistance, Medallions, etc.	18 9 7
and 3 @ 3/-	13 7 0		£104 3 10
Paid in advance, 1938/39,		Hire of Lecture Hall and Committee Room	...
17 @ 6/-	5 2 0	Lanternist's Fees and Lecturers' Expenses	13 17 6
Entrance Fees, 38 @ 5/-	£142 16 0	Conversazione Account (without charging	...
Excursions	...	Printing and Postages)	...
charging Printing and Postages)	45 2 9	<i>Irish Naturalists' Journal</i> , Affiliation Fee, years	11 1 5
Club Badges sold	0 6 0	1937 and 1938	...
Donations	0 18 0	Subscription, The National Trust	6 0 0
Junior Division Subscriptions :—		Third Grant towards publication of new Edition	0 10 0
1936/37	£2 5 6	of "Flora of N.-E. Ireland"	...
1937/38	3 3 6	Junior Division Expenses: Typing Circulars,	25 0 0
		Printing Winter Programmes, Postages, etc.	8 9 6
	5 9 0		£176 10 0
	204 1 9		
		Balance at 31st March, 1938 :—	
		With Northern Bank, Ltd., on	
		the Club's No. 1 Current	
		Account	£90 16 8
		Cash on hands	1 12 7
			92 9 3
			£268 19 3

Audited and found correct.

JAMES ORR.
A. M. M'KISACK.

12th April, 1938.

RECEIPTS AND PAYMENTS ON ACCOUNT OF COST OF PUBLICATION OF NEW EDITION OF "FLORA OF NORTH-EAST IRELAND."

RECEIPTS.		PAYMENTS.	
Balance in Bank at 31st March, 1937	... £137 15 2	Miss Shaw, Belfast, for Typing Manuscripts. Paid on instructions of Rev. W. R. Megaw, B.A. ...	£2 16 0
Interest on "Thrift Deposit" Account to 31st December, 1937	£1 7 0	Balance at 31st March, 1938 :—	
Third Grant from Belfast Naturalists' Field Club	25 0 0	With Northern Bank, Limited, on the Club's "Thrift Deposit" Account	... 161 6 2
	<u>26 7 0</u>		
	£164 2 2		£164 2 2

453

RECEIPTS AND PAYMENTS ON ACCOUNT OF THE ROBERT JOHN WELCH MEMORIAL FUND.

RECEIPTS.		PAYMENTS (NONE).	
Balance with Northern Bank, Ltd., at 31st March, 1937	... £272 13 9	Balance at 31st March, 1938 :—	
Subscriptions	£5 3 6	Cash : With Belfast Savings Bank ...	£252 5 0
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12th April, 1938.

R. G. HENDERSON, Hon. Treasurer.

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PRESENTED
MAY 1946



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1945

ANNUAL REPORTS AND PROCEEDINGS OF THE BELFAST NATURALISTS' FIELD CLUB

SERIES II.
VOL. X.



1938-39
till
1946-47

BELFAST.

Printed by the Northern Whig, Ltd., Bridge Street.

1947.

VOL. 1943

PROCEEDINGS AND ANNUAL REPORTS

SERIES II
VOL. X.



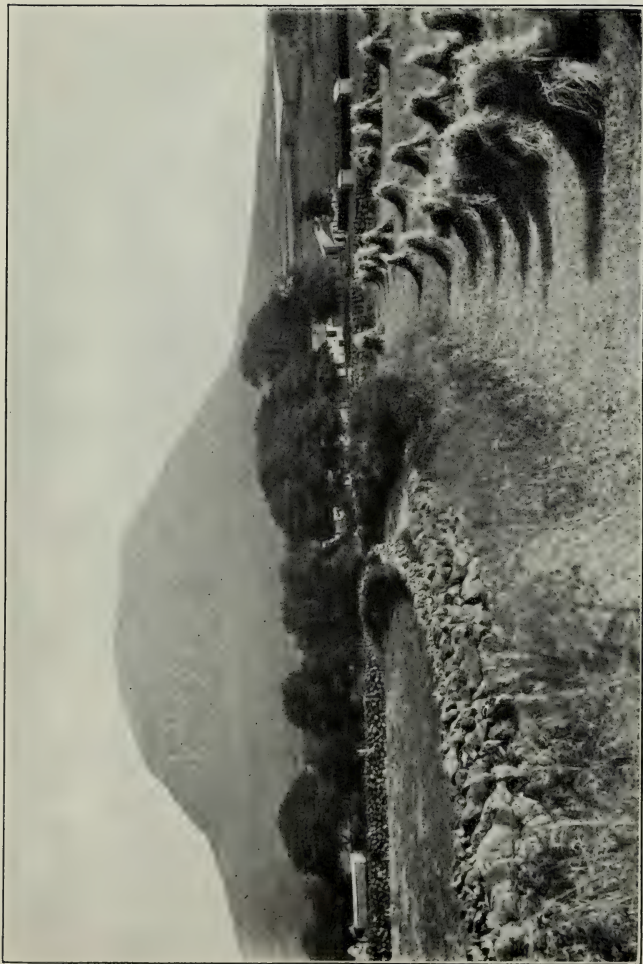
PART I
1938-1939.

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PRICE OF EXTRA COPIES TO MEMBERS 1/-.

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[Photo by A. M-I, Cleland

Slemish Mountain, Co. Antrim.

PROCEEDINGS AND ANNUAL REPORTS OF THE BELFAST NATURALISTS' FIELD CLUB

For the Year Ending 31st March, 1939
(SEVENTY-SIXTH YEAR)

SERIES II.
VOLUME X.



PART I.
1938-1939.

EDITOR:
A. M'I. CLELAND.

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PROCEEDINGS.

SUMMER SESSION.

CASTLEWARD AND STRANGFORD.

Date—30th April, 1938. Conductor—J. Skillen.

A bus left the Museum Buildings, College Square North, at 2.15 p.m., and conveyed the members directly to the estate of Castleward, permission to visit which had been kindly granted by Viscount Bangor. Here Old Castleward and Audley's Castle were inspected, these erections being of the familiar pile type of fortresses erected to guard the possessions of the English in Ulster.

From Castleward the party proceeded to Strangford and the grounds of the estate of Old Court, permission to visit the latter having been kindly granted by Lady Una Ross.

The next halt was at Kilclief Castle, still in a good state of preservation and in design a replica of Jordan's Castle in Ardglass.

Short stays were made at Benderg and Ballyhornan to inspect the fine exposures of calcareated Glacial Clays and Gravels to be seen there, the final halt being at Ardtole Old Church (St. Nicholas), now listed as an ancient monument. This building was formerly the parish church of Ardglass, but owing to a massacre of the congregation while at worship, in 1615 A.D., the church was brought within the defences of Ardglass.

Tea was served in Ardglass, and the bus left for Belfast again at 8.15 p.m.

HOLYWOOD AND CULTRA.

Date—10th May, 1938. Conductor—D. J. Carpenter.

This was an evening botanical excursion, the members walking inland from Holywood to Cultra and returning by the coast. Many land and seashore plants were collected and some work was done in marine fauna.

(No report.)

TYNAN ABBEY.

Date—14th May, 1938. Conductor—T. G. F. Paterson.

Leaving Museum Buildings, College Square North, at 9 a.m. the first halt, after a short stop at Armagh, was at Navan Rath. This famous earthwork is said to have been erected about the year 352 B.C., and to have been continuously occupied until its destruction in 332 A.D.

From the Rath the members proceeded to Tynan village and inspected the fine cross there, whose date is generally assigned to the 8th or 9th century.

The crosses at Tynan Abbey were inspected by kind permission of Captain N. Stronge, D.L. Here are to be seen three crosses (Well Cross; Terrace Cross; Island Cross), none of them being in their original settings.

Rathtrillick Fort was next visited, a triple-ringed structure with a diameter of 140 yards and trenches 16 to 20 ft. deep. Lisghen Fort, Tamlaght Mound and Niall's Mound were also visited.

Tea was served at Armagh, and at 8.30 p.m. the bus left for the return journey to Belfast.

EDENDERRY.

Date—24th May, 1938. Conductor—J. A. S. Stendall.

This was an evening excursion, undertaken for the purpose of studying various aspects of local botany.

(No report.)

ROSTREVOR.

(United Excursion).

Date—27th-29th May, 1938. Conductor—J. Skillen.

On this excursion headquarters were at the Great Northern Hotel, Rostrevor, all the affiliated Field Clubs being well represented. Members from the Dublin Field Club and the Louth Archaeological Society were also present.

Saturday, 28th May.

On this day the members made a long tour through North Louth, under the leadership of H. G. Tempest, visiting, among other interesting places, Dun Dealgan, the reputed Dun of Cuchulainn. The botanists thoroughly examined the varied flora of the ground covered, and during the evening, at headquarters, Dr. R. Ll. Praeger gave a very interesting talk on the plants seen and collected.

Sunday, 29th May.

On this day the members journeyed to South Armagh, under the leadership of T. G. F. Paterson, making a complete circuit of Slieve Gullion, visiting among other places Forkhill, Silverbridge, Glassdrummond, Crossinaglen, etc.

The two days excursion was most successful, being favoured with excellent weather.

ROWALLAN.

Date—4th June, 1938. Conductor—Miss W. J. Sayers.

(No report.)

CHURCH HILL DEMESNE AND MAGHERY.

Date—18th June, 1938. Conductors—D. J. Carpenter and J. Greer.

This was essentially an excursion for the botanists and was most successful, the variety of plants met with being very numerous.

The members first visited Annagarraiff Lough (now partially drained and devoted to peat cutting), where, on the site and along the former shore, the following plants were obtained:—Alder Buckthorn (*Rhamnus frangula*); Marsh Andromeda (*Andromeda polifolia*); Common Cow-wheat (*Melampyrum pratense*); Common Sundew (*Drosera rotundifolia*); Sweet Gale or Bog Myrtle (*Myrica gale*); Royal Fern (*Osmunda regalis*); Bog Asphodel (*Narthecium ossifragum*), etc.

The members next visited Maghery, at the mouth of the Blackwater river, where on the edge of Lough Neagh and the sides of various streams were met the following:—Flowering Rush (*Butomus umbellatus*); Great Water-Plantain (*Alisma plantago-aquaticum*); Lesser Water-Plantain (*A. ranunculoides*); Arrow-head (*Sagittaria sagittifolia*); Meadow Rue (*Thalictrum flavum*); Marsh Yellow Cress (*Nasturtium palustre* and *N. amphibium*), etc.

The additional plants also noted were:—Butter-fly Orchid (*Habenaria virescens*); Hemlock (*Conium maculatum*); Garlic Mustard (*Alliaria officinalis*); Common Hedge Mustard (*Sisymbrium officinale*).

ATHLONE AND DISTRICT.

Date—11th-15th July, 1938. Conductor—J. Skillen.

For this, the Long Excursion of 1938, the district chosen was Athlone and neighbourhood, the weather during the four days being excellent.

The members left Belfast by train for Dublin on the morning of the 11th, and from Dublin proceeded to Athlone by bus, stopping at Mullingar for afternoon tea. Headquarters were at the Imperial Hotel, Athlone.

Tuesday, 12th July.

The members were afoot bright and early ready to complete a full day's programme. After leaving Athlone, the first stop was at Kilconnell Friary, which was founded in 1400 for the Franciscans. This building is remarkable for the beautiful tracery of the windows and the perfect condition of the cloisters, on which very interesting examples of masons' marks were to be seen. The tall square-sided tower characteristic of Franciscan churches is in perfect condition.

The next stop was at Clonfert Cathedral, now the parish church. The party was met here by the Dean of Clonfert (the Very Rev. L. H. E. French), who gave a talk on the history and architecture of the building, pointing out and describing the doorway of beautiful Hiberno-Romanesque architecture. The wattled roof of the ancient sacristy of the monks is one of the few survivals of this architectural feature.

Leaving Clonfert, Clonmacnoise, the celebrated religious site on the banks of the Shannon, was soon reached. Some considerable time was spent here examining the high crosses, including the "Cross of the Scriptures." Here, and at various places, R. S. Lepper gave interesting talks on the history and architecture of the various sites. The last place to be visited at Clonmacnoise was the "Nuns Church." It was founded by Dervorgilla, whose fall from virtue brought about the Norman invasion.

This place was often raided by the Danes, as the Shannon was a very suitable waterway for their war galleys, and during the Danish domination Ota, wife of Turgesius, the most celebrated Dane of them all, was enthroned here on the high altar and gave oracles to her followers.

Wednesday, 13th July.

An early start was made for another whole-day excursion. Taking the road to Roscommon the first stop was at Rindown Castle, which is built on the point of a peninsula projecting into Lough Ree on the western side. Across the base of the peninsula the Anglo-Normans built a wall from shore to shore, converting the peninsula into an enormous bailey about threequarters of a mile in diameter. The wall was built with flanking turrets and arrow slits, about four feet thick and twelve feet high. The castle itself, even in ruins, is an enormous structure fitted with portcullis, drawbridge, and a deep fosse.

It was held for a time by the knights of the Order of St. John of Jerusalem, and the district round about is still known as St. John's. Their church, built beside the castle, consists of a nave and a chancel; both it and the castle are much overgrown with ivy.

The peninsula on which the castle stands is the property of the Gunning family, who have resided here for several generations. The house was formerly occupied by a married sister of Oliver Goldsmith, and Mrs. Gunning showed some relics of the poet, including a portrait of Goldsmith in oils, presented by him to his sister, some initialled silver spoons and some antique china.

Before tea in Roscommon a visit was made to the abbey, which was founded by King O'Connor in 1257 for the Dominicans. This was a noble building, noble still in ruin, but fast hastening to decay. The interior is in a dreadful state, hogweeds and nettles breast high obscuring the tombs and carvings; while the ivy is carrying on its destructive work.

Roscommon Castle was built by the Anglo-Normans in 1267, and is now but a shell. From its building to its destruction in the Williamite wars, its history was one of tumults and sieges. It is, or was, one of the largest castles in Ireland. Returning to Athlone the way was taken to Lissoy, the "Sweet Auburn" of Goldsmith's *Deserted Village*.

Here a resident pointed out the objects of interest—"the village preacher's modest mansion," now in ruins; "the never-failing brook," still babbling on; "the busy mill," now, alas, no more; and "the village church that topt the neighbouring hill."

The inn, "where nut brown draughts inspired," now, in addition to nut brown draughts, is the venue for picture postcards, and was well patronised on this occasion.

"Sweet Auburn" is still a place of beauty, fresh and green, compared with the grey limestone buildings and roads of the surrounding district.

On returning to Athlone a meeting was held, when Dr. R. Ll. Praeger gave an address on the geography of the central plain and the flora of the Shannon valley. Plants peculiar to the district having been collected during the two days, Dr. Praeger pointed out their characteristics.

A. H. Davison dealt with the geology of the district, more especially with its glaciation and eskers.

Thursday, 14th July.

In the forenoon the antiquities of Athlone were inspected, including the Anglo-Norman castle of King John, the remains of the town walls in the rectory grounds, the parish church, Ginckle's house, and other interesting remains of the British occupation.

The members left Athlone at 3.0 p.m., reached Belfast again after an uneventful journey, and so ended another long and very interesting excursion.

NESS GLEN.

Date—23rd July. Conductor—W. S. Ferguson.

On reaching Londonderry buses conveyed the members to St. Breacan's Chapel (within the precincts of Derry City), an edifice which possesses ecclesiastical associations going back to the 5th century. The present ruined building was probably erected by Redmond O'Gallagher 1569/1602. In 1397 the church of that date was visited by Archbishop Colton during his famous tour of the diocese. Here the Conductor gave a very interesting address on the history of the building.

The next stop was at Enagh Lough, in which are two islands and on each a crannoge. On one of the islands stood a castle of the O'Cahan's. On the west side of the lough are the ruins of an old church said by O'Donovan to be the largest ecclesiastical ruin in the county. At the Plantation it was used as a chapel of ease, and probably went into disuse shortly after that period. Here the Conductor gave another

interesting address, though neither crannoges nor church could be approached.

The shores of Lough Enagh have great botanical interest, but no time was allowed to the botanists to make any investigations.

Passing through Eglinton village (founded by the Grocers' Company in the 17th century), the next halt was at the shoulder of Slievebuck. Here lunch was taken in front of a magnificent prospect. The view is almost circular, at an altitude of about 800 feet, fronting a broad valley across which shadows chased each other. On the horizon could be seen Slieve Snaght (the highest point in Inishowen), Muckish, Errigal and many other heights.

Ness Glen (the chief objective of the excursion) was reached shortly after 2.30 p.m., but, owing to various circumstances, the time allotted the members was far too short to permit of more than a cursory examination of the many interesting geological and botanical aspects to be met here.

Ness Glen was found to be a magnificent piece of quite unspoiled territory, its lower end broad and with many green swards, bathed in sunshine or deeply overshadowed by the numerous trees filling the Glen. Here the pathways are broad and quite safe.

At its upper end the Glen narrows, the paths become mere tracks, not more than 6 inches wide in places, slippery, running on the edges of precipices where a fall might have serious consequences, or passing over roots of trees, or round or over moss-grown rocks.

There is a fine overhanging mass of rock at the Glen head, down which a beautiful fall tumbles, coffee coloured, brilliant in the chequered sunlight.

Ness Glen appears to be situated in a Schistose district, and both geologists and botanists were keenly disappointed that so little time was afforded in which to do any serious work in such a delightful and promising locality.

Tea was served in Londonderry, the members reaching Belfast again about 10 p.m.

MAGHERAMORNE.

Date—26th July, 1938. Conductor—A. M'I. Cleland.

This was an evening excursion undertaken for the purpose of studying the very varied botany to be found in

the old chalk quarry workings at Magheramorne. Some of these workings have lain undisturbed for upwards of 80 years, and in that period have developed a wonderful growth of tiny shrubs and humbler plants. Heavy rain had fallen in the afternoon, but whilst the members were at Magheramorne the sun came out very brightly and the woods were full of light, though overhead and underfoot everything was reeking wet.

A rich harvest of plants was gathered, including Bee Orchis (*Ophrys apifera*) and Rose-bay Willow (*Epilobium angustifolium*), the latter in some abundance.

CRAWFORDSBURN GLEN.

Date—23rd August, 1938. Conductor—Miss W. J. Sayers.

This was an evening excursion (rendered possible by the kindness of W. J. Stewart, Esq., M.P.), the object being the study of the local botany.

(No report.)

GLENARIFF AND GLENBALLYEMON.

Date—20th August, 1938. Conductor—J. Skillen.

The members journeyed to Ballymena by rail and thence by bus to Glenariff and Cushendall (where tea was served), returning to Ballymena via Glenballyemon.

Glenariff was looking at its best, much water coming over the falls, and the glen showing an abundance of woodland and early autumn plants.

Glenballyemon presented a great contrast with Glenariff, being bare and bleak in comparison with the sylvan beauty of the latter delectable spot. On the other hand it presented fine views of the mountains, in particular Tievebulliagh (sometimes called the Antrim Matterhorn), where the stone-axe factory was found in former days.

(No report.)

SLEMISH.

Date—10th September, 1938. Conductor J. Skillen.

(No report.)

See Plate 1.

OMAGH AND DISTRICT.

(United Excursion).

Date—23rd-25th September, 1938. Conductors—Rev. E. M. Gumley, A. H. Davison and J. Skillen. Numbers present, 80.

On this occasion headquarters were at the Royal Arms Hotel, Omagh, the following Clubs being well represented:—Belfast, Route, Londonderry and Omagh.

Saturday, 24th September.

During this day the members journeyed via Drumquin to Castlederg. Here they inspected the castle ruins and a dolmen locally known as the Druid's Altar.

From Castlederg the road was taken to Torney Dorrageh in Co. Fermanagh, the route touching three counties in ten minutes. At Torney the members visited a chambered cairn, and at Scraghey (where lunch was taken) they spent some time either botanising or examining the "sweat house" to be seen there. At Castle Archdale they explored the deer park and a stone circle.

Sunday, 25th September.

During the afternoon the members explored the beautiful Gortin Glen, the chief interest being botanical and geological.

On the evening of assembly the President of the Omagh Club (W. Edmund Orr) welcomed the members, and at the end of the whole-day excursion Miss W. J. Sayers gave a talk on the plants collected during the day.



WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

The Winter Session opened with a Conversazione held in the Assembly Buildings on Tuesday, 11th October, 1938. There was a very large attendance of members and friends, Tea being served from 6.30 till 7.45 p.m.

The Junior Division prize winners were as follows:—
President's prize, W. Archer.

Zoology—1, R. Vivian Gotto; 2, Audrey Nelson.

Botany—1, Joan M'Connell; 2, Molly Lauder.

*Geology—1, Edna Nelson; 2, Leslie Stendall.

Archaeology—1, Patricia and Clare Macmahon; 2, Joan M'Connell.

Certificates were awarded to the following:—Ethna Barry, May Beck, G. F. Brice Duffin, Roy Guiler, Evelyn James, Neal and Denis Rankin, Jean M'Veigh, C. Shaw, R. W. Thompson, R. D. Meikle, J. H. Jeffrey, A. O. Dyson, W. B. Edwards, G. Honeyford, P. Ward, J. Levin, D. Houston, M. Thompson, A. M'Clay, M. Peile, H. Henning, H. Abraham, R. Hobson, W. Glass, S. Houston, H. Johnston, R. M'Clay, H. Corbett, W. Haughton, R. Johnston.

Silver Medal (presented by Mrs. Bolton, for general geological work), Owen Clarke.

In handing the prizes to the successful competitors the President (Miss M. Gaffikin) said she gave a very hearty welcome to all there, members and friends. She paid tribute to the splendid exhibition and congratulated the exhibitors on the splendid way the articles had been laid out and labelled.

The President then announced, amid applause, that the Committee had unanimously awarded the Club's Commemorative Medal to Miss W. J. Sayers, B.A., for her splendid work in the science of Botany, coupled with her long continued efforts on behalf of the Club, of which she had been a member since 1917.

The exhibits of the varied activities of the Club made an extremely interesting display. The entire ground floor of the Assembly Hall was devoted to the Exhibition, and the interest of the spectators was manifest in the large number who awaited the opening of the doors, and who inspected the display until the commencement of the business meeting almost three hours later.

A very successful evening was brought to a close by an exhibition of lantern views of places visited during the summer excursions.

THE BRONZE AGE IN IRELAND.

At the opening meeting of the Winter Session on Tuesday, 15th November, held in the Museum Buildings, College Square North, at 8.0 p.m., the President (Miss M. Gaffikin) gave an address on above subject before a large and interested audience, illustrating it by many lantern views, maps and diagrams.

The President remarked that a comparison of distribution maps of Bronze Age finds in Northern Ireland with one of Megalithic Monuments shows one fact of especial interest, viz.: on the whole a decided movement from higher to lower levels.

Types of Bronze Age burials are as follows:—(a) secondary cists in existing megalithic monuments; (b) single cists in hill-top cairns; (c) in multiple cist cairns; (d) single cists without any surface indication of their existence; (e) single burials without any surrounding stones; (f) urn fields. A detailed study of these with their accompanying cinerary urns, food vessels, pigmy cups, and other funerary ware might prove of inestimable value and throw some light on their chronology. Cremation was usual.

Professor Walmsley distinguished various elements which went to make up Bronze Age Man. (1) An epipalaeolithic race. (2) A race of people who were probably responsible for the introduction of the megalithic culture. (3) Beaker folk.

There was no great change in the population until the Late Bronze Age, when invaders of mixed Nordic and Alpine ancestry, accompanied by a subservient short dark race, entered the country. A true Nordic type may also have arrived at this time.

Study of the Bronze Age map and Dr. Charlesworth's Geological map shows that most of the sites are on areas

of lighter soils and gravels. For example by Lisburn to Hillsborough and by Dundonald to Newtownards. The river Bann seems to have been the principal entry and the valley is thickly populated.

Flat axes, some beautifully ornamented, and halberds are the best known type implements of the Early Bronze Age. The wide overseas distribution of flat axes of Irish type indicated flourishing trade. Lunulae made of the famous Irish gold were also largely exported.

The palstave, a development of the flat axe, was evolved during the Middle Bronze Age, which also produced daggers, rapiers, spear-heads and other implements, as well as various ornaments.

In the Late Bronze Age invaders brought the sword and socketed axe; gold ornaments were more varied and included the gorget.

According to descriptions based on certain finds the dress of Bronze Age man would appear to have been some loose fitting undergarments covered by a voluminous cloak. Rich ornaments were fashionable. His dwelling may have been of wood or stone according to accessible material. It is interesting to note that some finds are labelled with the names of sites of large ring forts, especially in the district west of Armagh. Lately, Professor O'Riordan excavated ring forts which can definitely be dated to the Bronze Age.

The occupations of Bronze Age man were probably agricultural, pastoral and industrial. Ballymena seems to have been a source of output for implements. No doubt its geographical position as a focal point for routes from the river fords and the valleys leading from the uplands made it an important trade centre. Armagh and the surrounding district were also areas of importance and it looks as though Emania were already a flourishing realm. In fact, when a perusal of the map shows concentration at such points as Armoy, Ballymoney, Ballymena, Antrim, Toome, Carrickfergus, Belfast, Lisburn, Hillsborough, Dundrum, Armagh, Fivemiletown, Derry, etc., it may be stated with certainty that our present day Ulster had its roots in the Bronze Age.

At the conclusion of the address E. E. Evans and J. Skillen expressed the great appreciation of the members of the many interesting facts the President had placed so clearly before them.

With the election of nine Junior Members the meeting terminated.

MEDICINAL PLANTS.

The second meeting of the Winter Session was held on Tuesday, 6th December, at 8.0 p.m., in the Museum Buildings, College Square North, when Miss F. M. J. Adams, M.Sc., read a paper on above subject, illustrated by many excellent lantern views and specimens of plants. There was a very good audience, and the many interesting facts placed before the members were dealt with in an extremely lucid and pleasing manner.

The lecturer first dealt with the interest of primitive man in plants, either as food necessities or as means for healing, though the latter was mixed with much magic and superstition.

Coming to later times, it is to the ancient Greeks we owe the first written and descriptive accounts of plants, as evidenced in the "Enquiry into Plants" by Theophrastus, who may be regarded as the Father of Botany. In the first century of the Christian era Dioscorides wrote descriptions of medicinal plants and might be called the Father of *Materia Medica*. During the vast period of the Dark Ages no advance was made for centuries.

At last appeared the first glimmerings of the scientific attitude—to observe for oneself and record accurately—many great names being connected with this period. Among them may be mentioned Gerard's delightful and quaint old herbal, its pages steeped in folk-lore and full of unconscious humour. A valuable copy of this work may be seen in the library of Queen's University.

Shakespeare may have walked in Gerard's garden. He makes many references to old English herb-lore, such as the mandrake and the superstitious ideas connected with it.

An enormous advance in the scientific thought regarding plants was made from the 16th and 17th centuries to the present day. This study of plants for their own sake led to the various systems of classification, and enquiries into their medicinal properties became a special branch by itself under the name of *Materia Medica*.

Plants of medicinal importance in each of the four large groups of the plant kingdom include among the *Thallophytes* such examples as Carrageen, Fucus, Yeast, Bacteria, Ergot, etc. Of these yeast is of particular importance in connection with vitamins; bacteria in connection with sera and vaccines; whilst ergot, though naturally a destructive organism, is nevertheless a potent medicine.

Among the Bryophytes we have *Sphagnum*, a moss used in the Great War as an absorbent.

In the Pteridophytes we have the Male Fern, which has been used from time immemorial as a cure for tape worm, and is still so used.

In the Spermaphytes (or Flowering Plants), medicinal properties were at one time claimed for an enormous number. The weeds familiar to most of us had each a virtue ascribed to them. To-day only some of these are recognised by the British Pharmacopoeia as of sufficient medical importance.

These selected plants are subjected to an exhaustive examination, the resulting drugs being standardised by different methods. The headquarters where this vital work is carried out are at the National Institute for Medical Research, Hampstead, London.

All parts of plants may be used medicinally: seed, flower, leaf, stem, root or bark. The substances which have medicinal properties are numerous: oils, resins, mucilages, alkaloids, glucosides, etc. Some families include many plants of medical importance: Solanaceae; Leguminosae; Ranunculaceae; Rubiaceae, etc.

In conclusion the lecturer dealt with the interesting history of *Cinchona*, the romance of its discovery, and its use by the native Indians of Peru; the economic history of quinine, its value as a medicine and the origin of its name; the discovery, properties and uses of vitamins and recent research on the vitamins of yeast, etc., etc.

A discussion followed the conclusion of the paper in which the following members took part:—Miss W. J. Sayers, Rev. W. R. Megaw, J. Skillen, J. A. S. Stendall, F. Storey, etc.

With the election of seven Junior Members the meeting terminated.

QUERY NIGHT.

The third meeting of the Winter Session was held on Tuesday, 20th December, at 8.0 p.m., in the Museum Buildings, College Square North, the evening being devoted to consideration of the various Queries put by different members. Owing to the extremely severe weather the attendance was small. The Lecture Room was also very inadequately heated.

With the election of five Junior Members the meeting terminated.

A TALK ABOUT BIRDS.

The fourth meeting of the Winter Session was held on Tuesday, 17th January, at 8.0 p.m., in the Museum Buildings, College Square North, when a very excellent paper dealing with the above subject was presented, conjointly, by Messrs. M. Neal Rankin and Denis H. Rankin, both members of the Junior Section.

The authors said: This paper is based on our own observations during the past four or five years, and we try to show how the changes in the city during the last century or more have influenced the bird population. We still have the remains of some of the bird haunts of one hundred years ago in, for example, the Greencastle shore, which is only a small part of the once enormous estuary of the Lagan; and the Belfast Castle grounds which stood undisturbed until a few years ago.

We find that mainly surface feeding duck come to the upper reaches of Belfast Lough, principally Wigeon in flocks up to 10,000, Shelducks, Teal and Mallard, the last three in small numbers. We have on the other hand seen flocks of Scaups of 100-500 frequently in-shore, and Mergansers stay in small numbers all the year round. The Waterworks attracts Diving ducks: Tufted ducks, Scaups, Pochard and Goldeneye all come in fair numbers. Other swimming birds we see about the district are the Dabchick, Slavonian and Great Crested Grebe, Mute and Whooper Swan, Brent and some Grey Geese, Cormorants, Guillemots, Black Guillemot and the Red-throated Diver. We saw one flock of Great Crested Grebes of 150-200 birds off the Fortwilliam shore on 30th August, 1938. The six species of Gulls all frequent the Lough, and all but the Kittiwake may be seen about the Lagan and Waterworks. The Common and Arctic Terns are seen in passage.

The Waders are represented chiefly on the Lough by Redshanks, Oyster Catchers, Curlews, Ringed Plover, Whimbrel, Sandpiper, Peewits, Snipe, Jack Snipe, Herons, Golden Plover, Greenshanks, Bar and Black-tailed Godwits, and Turnstones. The Woodcock nested some years ago in Belfast Castle grounds, but does so no longer.

The Kestrel and Sparrow Hawk are frequently seen, the former still nesting on Cavehill, where also the Raven nests. Constant residents are the Rooks, Jackdaws and Magpies, while more irregular visitors are the Grouse, Bullfinch, Long-tailed Tit, Kingfisher and Dipper. Many

other smaller birds we have as interesting summer or winter migrants, viz.: the Cornrake, Cuckoo, Swifts, Swallow, House and Sand Martin, Spott Flycatcher, Grasshopper and Sedge Warblers, Wheatear, Black Redstart, White Wagtail, Redwing, Fieldfare and Snow Bunting. We encountered a flock of some 300 of the latter bird on Colinward during the prolonged cold spell of December, 1937.

We discuss some interesting problems connected with birds seen about the city, chiefly the migration routes followed over the town by Geese, Swans and Peewits.

We conclude the paper with a short discourse on the roosting habits of the Tree Creeper as we have observed them in Belfast Castle grounds. This we illustrate by a few lantern views of their roosting holes and the birds awake and asleep in them.

The hearty appreciation of the large audience for the very entertaining paper having been suitably expressed by J. A. S. Stendall and Rev. W. R. Megaw, the meeting terminated.

VOLCANOES.

The fifth meeting of the Winter Session was held on Tuesday, 21st February, at 8.0 p.m., in the Museum Buildings, College Square North, when a most interesting paper dealing with the above subject was presented by Dr. A. W. Woodland, B.Sc., Ph.D., illustrated by a very fine series of lantern views.

A short discussion followed the reading of the paper, those members taking part including A. M'I. Cleland, J. A. S. Stendall and A. H. Henderson.

(No abstract.)

FIFTY YEARS OF FIELD WORK.

The sixth meeting of the Winter Session was held on Tuesday, 7th March, at 8.0 p.m., in the Museum Buildings, College Square North, when a deeply interesting lecture on the above subject was given by Dr. R. Ll. Praeger.

In the course of his remarks the lecturer dealt first with early work in connection with the Belfast Club, helping S. A. Stewart in field-work connected with the production of the "Flora of the North-east of Ireland," which appeared in 1888; and he pointed out the great advantage in acquiring knowledge of a group from someone who is an expert in it,

rather than by laborious search in books. Co-operation for some years with W. H. Phillips led to an intimate knowledge of native ferns and their varieties.

He told the story of the Club's work on the Larne gravels, which showed that man was present during the whole time of their deposition, or earlier; also of his work on the estuarine clays and raised beaches of the North-east. With S. A. Stewart two summers were spent in a thorough examination of the flora of the Mourne Mountains. He was one of a Field Club committee who examined the interesting glacial beds at Ballyruder, and later, with W. J. Sollas, a good deal of work was done in the boulder-clays and associated beds south of Dublin.

Five years of botanical field-work all over Ireland allowed of the publication in 1901 of "Irish Topographical Botany." He described two maritime expeditions, one for deep-sea dredging off the south-west coast, and the other to the lonely islet of Rockall. Another unusual experience was the investigation, with Prof. W. J. Sollas and others, of the disastrous Kerry bog-flow of 1896, when eight persons perished. He took part in the investigation of cave deposits, inaugurated by Dr. Scharff and Mr. Ussher, which led to the discovery of bones of a number of animals not previously known to have existed in Ireland.

Previous work on the raised beaches came in useful in 1903, when his evidence helped to establish the Crown case in the "Gold Ornaments Trial," when the British Museum had to yield up to the Dublin Museum some beautiful objects discovered near Limavady.

A botanical survey on ecological lines of the area south of Dublin was carried out in conjunction with Dr. Pethybridge, and a number of limestone caverns in Fermanagh and at Mitchelstown were surveyed in co-operation with a party of English speleologists. Several years were devoted to the work of the Clare Island Survey, when over a hundred biologists visited that western island with surprising results, 1,253 animals and 583 plants being added to the Irish fauna and flora.

For the purpose of his "Tourists' Flora of the West of Ireland" much work was done in the west during 1906-9. Then he joined with Prof. R. A. S. Macalister in archaeological digging, carried on at intervals for nearly twenty years, during which bronze age and iron age structures at Carrowkeel, Naas, Usneach, Colbinstown, etc., were explored.

A study of the genus *Sedum* and the *Sempervivum* group occupied many years, and led to much travel in Europe and the Canary Islands especially. The latest piece of field-work was in connection with the second edition of the "Flora of the North-east of Ireland," four months in all having been spent during 1935-37 in verifying old records and exploring the less known parts of Down, Antrim, and Derry.

A short discussion followed the delivery of the lecture, those members taking part including A. H. Davison, J. A. S. Stendall and J. Skillen.

TREES.

The seventh meeting of the Winter Session was held on Tuesday, 21st March, at 8.0 p.m., in the Museum Buildings, College Square North, when a lecture on the above subject was given by Miss W. J. Sayers, B.A., the lecture being illustrated by a series of excellent lantern views.

The lecturer first briefly referred to the beauty of trees, whether in winter or summer; the comparatively small area devoted to them in our islands; their structure; their variation in size, from the 1,000 years-old oak, reaching 130 feet in height and perhaps 50 feet in girth, down to the tiny scrub willow of 2 inches. Continuing, the lecturer spoke of trees in relation to their associated plants; and to light, water, soil and wind as affecting their growth.

The main object of the lecture was to show, by means of lantern views and actual specimens, how this may be identified by their form, bark, leaf buds and mode of branching, leaves, flowers, fruits and seeds.

In the discussion that followed the following members took part:—J. A. S. Stendall, A. M'I. Cleland, J. Skillen, A. H. Davidson.

ANNUAL MEETING.

The Annual Meeting was held in Museum Buildings, College Square North, on Tuesday, 18th April, 1939, the President (Miss M. Gaffikin) in the chair. The following reports were presented:—

ANNUAL REPORT.

The Committee has pleasure in presenting the report for the seventy-sixth year, and wishes to congratulate the members on the continued vitality of the Club.

During the year 49 members were elected. Against this there was a loss, through deaths, resignations and lapsed memberships, of 60, showing a decrease of 11. The roll of members now stands at 488.

Your Committee has pleasure in reporting that the past year has been one of sustained interest and that after an existence of seventy-six years the Club holds a prominent place in the intellectual and scientific life of the community.

This year saw the publication of the 2nd edition of the "Flora of North-east Ireland," fifty years after the publication of the 1st edition and twenty-six years after the publication of the second supplement to this edition.

Two volumes of the Proceedings have also been published this year, and your Committee desires to thank A. M'I. Cleland who, in the regrettable absence of the Hon. Librarian through illness, saw them through the press.

It may be noted that the Welch Memorial Plaque, executed by Miss Rosamund Praeger, has been handed over to the Municipal Museum and Art Gallery as a permanent memorial of the life and work of R. J. Welch.

During the summer, and apart from sectional excursions, fourteen field meetings were held, including the Conference at Omagh.

The united week-end excursion in May had its headquarters at Rostrevor, and the two excursions held on this occasion were to North Louth and South Armagh respectively. Both at the Conference and the united excursion the attendance was most satisfactory, the hotel accommodation available being taxed to its capacity.

The long excursion in July was to Athlone, and the attendance in this case was also satisfactory, the excursion being most successful in every way.

The programme of the Summer Session was carried out in its entirety. All excursions were well supported and most successful, the attendances in every case being very encouraging.

The Winter Session opened with the Annual Conversazione, the attendance being up to the average of former years, a large and animated audience, with the exhibits, entirely filling the ground floor of the Assembly Hall. The Juniors under their energetic Secretary, Miss Felicity Bolton, had a most varied and creditable display. Special mention should be made of the exhibits shown by the Natural History Society of the Royal Belfast Academical Institution.

The various meetings of the Winter Session were held as per programme. All lectures, with one exception, were illustrated by lantern views, the attendances being very gratifying.

The Committee held 10 meetings during the year, the average attendance being 7 members.

J. SKILLEN,	}	<i>Hon.</i>
W. G. R. SKILLEN,		<i>Secretaries.</i>

OBITUARY.

Hugh Aird.
 Mrs. W. M. Crawford.
 Miss M. E. Cunningham.
 Mrs. I. Green.
 H. A. C. Griffith.
 Douglas Martyn.

REPORT OF LIBRARIAN.

There is little to report regarding the past year. The exchange list has been maintained, a list of Exchanges being appended.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF THE RECORDING SECRETARY.

There have been three events of outstanding importance during the year.

First, the publication of the new *Flora of the North-East of Ireland*, the result of indefatigable labours on the part of Dr. R. Lloyd Praeger and Rev. W. R. Megaw, assisted by

other keen field workers from within the Club, notably Miss W. J. Sayers, Captain C. D. Chase, A. H. Davison, E. N. Carrothers and C. R. Nodder.

This exhaustive volume has been generously received by botanists throughout the British Isles, and is recognised as one of the most complete of our regional floras; a tribute to the joint authors in which we all join.

Next comes the inauguration of what is now known as the Bell-Welch Memorial Fund, made possible through the generosity of a member of the Club who desires to remain anonymous. This Fund, which fittingly bears the names of two of our best known workers of recent times, is intended to assist members of the Club with money grants in furthering their researches, within the bounds of Field Club activity. The initial capital sum is £100, and as only the interest can be used the withdrawals will necessarily be limited, until other members come along and add to the capital, either anonymously or otherwise. (For Rules see page 30).

The third item is the acquisition of White Park Bay as a place of national interest, for preservation under the care of The National Trust. Although the Club was not officially connected with the project, it liberally subscribed and through the knowledge and activities of individual members largely assisted in many ways. As Field Naturalists and Antiquarians we owe a debt of gratitude to the members of the Northern Ireland Branch of The Youth Hostel Association, through whose efforts White Park Bay has been saved for all time.

The appearance on the Foyle of a Flamingo, *Phoenicopterus ruber antiquorum* Temm., on 3rd April, 1938, and reported by F. W. M. Logan, B.A., Hon. Secretary of the Londonderry Club, coupled with two subsequent records of birds of this species having been seen in Counties Cork and Limerick respectively, has led to the claim for recognition of the Flamingo to be placed on the Irish list as a rare straggler (*I.N.J.* vii 2. p. 54; 5. p. 127).

Starlings are no strangers in Ulster, especially during the winter, but it is interesting to note that two birds were captured in December, 1938, bearing rings which proved that one, taken at Moy, Co. Tyrone, had come from Riga; while the second, secured in Belfast, had been marked as a nestling on a Dutch island on 25th May, 1938.

Among insects the most interesting record is that of a Silver-striped Hawk Moth, *Hippotion celerio* L., caught on 19th November, 1938, on Crumlin Road, Belfast. The only previous Irish record for the species seems to have been in 1881. (*I.N.J.* vii 4. p. 114).

Numerous records of aquatic coleoptera were reported by W. M. Crawford, B.A., F.R.E.S., which, together with full details of the foregoing and other notes, will be found in the pages of *The Irish Naturalists' Journal*.

J. A. SIDNEY STENDALL, *Hon. Recording Secretary*.

REPORT OF BOTANICAL SECTION.

There were two excursions during the session, the first on 7th May, when 34 members, conducted by Miss W. J. Sayers and A. M'I. Cleland, visited Clandeboye Demesne (by permission of Mr. M'Queen, Land Steward). The trip proved of great interest, but no unknown flowering plants were found.

On 11th June D. J. Carpenter conducted an excursion to Seapark, by kind permission of Sir George Clarke. Having carefully examined the trees the party was shown the hot-houses by Mr. Baird (Head Gardener), who patiently answered many questions. To his co-operation much of the success of the excursion was due.

W. R. MEGAW,	} <i>Hon.</i>
ELEANOR E. BARRY,	
	} <i>Secretaries.</i>

REPORT OF GEOLOGICAL SECTION.

On May 10th, 1938, an excursion to Holywood enabled members to examine sections in cuttings made in the raised beach at Marino.

At the long Excursion to Athlone in July the esker on which Clonmacnoise stands proved of great interest, and the contrast between this tumbled area of glacial debris and the adjoining flat, boggy area of the central plain was most striking. Good examples of the action of water on limestone were seen, including mushroom rocks around the shores of Lough Ree.

On September 3rd, 1938, Professor Charlesworth led an excursion to Knockagh and Woodburn Glen, where he explained the causes of the formation of the two magnificent

spillways which cut across this hill. He also pointed out the effects of river erosion and rejuvenation in the formation of Woodburn Glen and Gorge as well as the changes which occur in the topography of the country at the junction of the Chalk and Greensand. In addition he gave an exposition on the formation of Salt in Keuper Marl times.

On September 10th, 1938, Mr. R. E. L. Clarke and Mr. J. J. Hartley conducted an excursion to Lisburn and the White Mountain Area. Mr. Clarke directed the party to the new John D. Barbour Well, where he demonstrated by means of sections and diagrams the sinking of the bore, the various strata met with and the method of construction and operation of the Pump.

Sections were examined in the course of the afternoon in the Trias, Cretaceous, Eocene, and Pleistocene. A special feature was the fifteen foot section of Chalk between the Triassic Marl and the overlying basalt at Messrs. Belshaw's Quarry at Oldpark, while in a near-by quarry at Rockville the chalk is from 35 to 40 feet thick. Mr. Hartley explained the probable cause of this phenomenon and in addition pointed out good examples of faulting, slickensides, and dykes.

At Knocknadona the party examined the old chalk land surface on which lignite and the remains of trees have been found beneath a thick covering of Basalt.

J. K. CHARLESWORTH,	}	<i>Hon.</i>
A. H. DAVISON,		<i>Secretaries.</i>

REPORT OF ZOOLOGICAL SECTION.

The Zoological Section regrets to report what is probably its worst season on record. The weather was so inclement that its two main excursions had to be adjourned until the following summer. The third excursion was held in good weather in the Zoological Gardens at Bellevue, where an interesting and instructive afternoon was spent. The Section is looking forward to better times in the incoming season.

J. S. LOUGHRIDGE, *Hon. Secretary.*

REPORT OF ARCHAEOLOGICAL SECTION.

The Section held three excursions during the summer session, all being well attended.

The excursion to Rathshee included Ballylinney and Lisnalinchy. At Rashee and Ballylinney photographs were

taken of the "corpse-houses" in these old graveyards, as well as the "mort-safe" in the former place, for publication in the *Ulster Journal of Archaeology*. While here a native of the district, who is now a member of the Club, took the party to inspect a rath which apparently had not been officially recorded.

The second excursion was to Skerry Old Church in the Braid Valley, a patrician foundation. Here preservation work has been carried out on the building, and what remains of the church will now stand for many years. The ancient vault of the O'Neills', where the noted French John O'Neill is buried, is now in use as a charnel house, and as a store and shelter for the grave-digger.

The third excursion was to Struell, where Mr. A. Albert Campbell gave a talk on the holy wells.

The holy wells were once famous for pilgrimages, especially on the Eve of St. John, but have been discontinued since the middle of the last century. Recently there has been a revival of visits from a religious point of view.

The wells are stone roofed, showing their antiquity, the most interesting being Tubbernasoul—the well of the eyes. It is of beehive shape and with a domed stone roof.

A visit to St. Patrick's Chair, a rude stone seat on a near-by eminence was always included in a tour of the wells by visiting pilgrims.

R. S. LEPPER,	}	Hon.
JOSEPH SKILLEN,		Secretaries.

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

The Survey continues to make progress. During the past year antiquities of various types have been reported, including a good many standing stones. A new souterrain at Maghera, Co. Down, was explored and planned, some bones, reported to be human, were found in it, but investigation proved them to be otherwise. It is hoped to publish a report and plan of this souterrain in the *Ulster Journal of Archaeology*.

Once more especial thanks are due to Miss Rea and Mrs. Crozier for their excellent work. Miss Rea, in collaboration with Miss D. Malet, sent in an interesting report of Antiquities in the Omagh district.

Students of Queen's University continue to make use of the Survey. It was also consulted by a student of Manchester University who was engaged in research work on megalithic monuments. Professor Fleure and Dr. E. Evans obtained some information from the Survey in planning an outing for the students at the Summer School at Stranmillis Training College. It is gratifying to realise that the work of the Survey is of real value.

M. GAFFIKIN, *Hon. Secretary.*

REPORT OF JUNIOR DIVISION.

There have been 37 new members. Eight members resigned on leaving the district and three were transferred to the Senior Section. The present membership of the Division is 126.

This year the Committee decided to renew the Factory excursions which proved so popular some years ago.

Old members have done excellent work. This year marked an occasion of unusual honour for the Junior Division when two of our members, Neal and Denis Rankin, were invited to lecture to the Club.

During the year there have been five Committee meetings and one General Meeting. At the General Meeting, following a suggestion by Mr. Bailey, it was decided that the Junior Division should attempt a Survey of some local area. After some preliminary investigation it has been decided to survey the Belfast Castle Grounds and part of the Cave Hill. Permission has been granted for the Juniors to work and collect in the Castle Grounds, and leaders of various Sections have been appointed. The Survey will, of course, take some considerable time, and this season we hope to tackle the Botany and Zoology of the area. Leaders of sections will do individual work, assisted by the bulk of the Juniors as "Mass-Observers."

The Annual Conversazione in October was marked by the excellence and number of Junior exhibits, all more scientific than formerly, and showing great promise. This year the Natural History Societies of the Friends' School, Lisburn, and the Royal Belfast Academical Institution exhibited with the Junior Division.

The Junior Division Special Conversazione which concluded the winter meetings of the Division, was much enjoyed, and everyone present appeared most eager to start work on the Survey and on their own collections.

Meetings and excursions during the year were as follows:—

14th May: Ballyduff Quarry. 24th May: Edenderry.
 14th June: Black Mountain. 18th June: Hollywood Hills.
 23rd July: Larne. 3rd Sept.: Newcastle and District.
 17th Sept.: White Mountain. 8th Oct.: Malone Golf Course
 Pond. 11th Oct.: Annual Conversazione. 15th Nov.:
 Discussion in Old Museum. 26th Nov.: Natural History
 Films in Municipal Museum. 29th Nov.: Belfast Rope
 Works and Inglis' Biscuit Factory. 7th Jan.: Cave Hill.
 17th Jan.: Talk on Birds. 18th Feb.: Talk on Geology.
 25th Feb.: Ballyclare Paper Mills. 25th March: Junior
 Division Conversazione.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929. } No award.
- 1930. }
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1935. No award.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

REPORT OF CLUB'S DELEGATE TO MEETING OF BRITISH ASSOCIATION.

I had again the honour of acting as the Club's Delegate to the Conference of Corresponding Societies convened by the British Association at Cambridge on 19th and 22nd August, 1938, presided over by the Rt. Hon. the Earl of Onslow, P.C., G.B.E., and largely attended.

In his Presidential address on the opening day, Lord Onslow advocated a scheme in detail for the establishment, preferably in some large area of deerpark on the West Coast of Scotland, of a National Park, mainly for the preservation of the native Fauna and Flora.

The mammals preserved might include red, roe, and fallow deer; wild or park cattle, like those in the herds of Cadzow, Chartley, and Chillingham; wild goats; foxes; badgers; stoats; weasels; otters; wild cats; pine martens, and pole cats; and the rarer bats.

The Park should also contain a strict bird sanctuary, with breeding grounds for sea birds.

The address led to a lively and interesting discussion.

This was followed by a fine joint paper from Mr. N. B. Kinnear and Dr. D. H. Valentine on *Wicken Fen, and what the National Trust has done for East Anglia*, in which Mr. Kinnear, as a Zoologist, dealt with Blakeney Point in Norfolk, and other marine reserves, while Dr. Valentine described the interests of Wicken Fen for a Botanist.

On the second day Dr. H. W. Parker propounded a scheme for *The Co-operation of Corresponding Societies in the study of systematics in relation to general biology*, and afterwards noted the names of Societies and individuals likely to be helpful to his project, including some in Ulster.

Dr. Vaughan Cornish then read a short paper on *The Preservation of Crown Lands*, with special reference to a tract of heath and woodland in Surrey and Berks, near Camberley and Bracknell, being part of the old Forest of Windsor.

This was followed by a most interesting and enjoyable visit to the University Botanic Garden, by kind invitation of Professor F. T. Brooks, M.A., F.R.S., Professor of Botany, who showed us slowly round the grounds, entertained us most hospitably, and gave us every opportunity to examine and admire the fine collection of rare exotic trees, shrubs, and water plants, so successfully grown, excellently labelled, and beautifully grouped in spite of the severity of the inland climate and the natural flatness of the ground.

R. S. LEPPER, *Delegate*.

THE BELL-WELCH MEMORIAL FUND.

A sum of £100 has recently been placed at the disposal of the Club, and the Committee (with the assent of the donor) has decided that this shall form the nucleus of a Fund, called "The Bell-Welch Memorial Fund," the interest from which is to be used to provide assistance for members of the Club who undertake research work in the field. The rules governing the Fund are as follows:—

RULES.

1. The Fund shall be known as "The Bell-Welch Memorial Fund."
2. The money shall be placed on deposit in the Belfast Savings Bank to the credit of the Bell-Welch Memorial Fund.
3. The capital shall be allowed to remain intact, only the interest being used.
4. The interest may be allowed to accrue.
5. The accrued interest up to the amount of £10 at any one time is to be devoted to giving assistance to any member or members of the B.N.F.C. in respect of travelling expenses in furtherance of research work in the field—geological, botanical, zoological, or archaeological.
6. The Fund shall be administered by a Standing Committee of five B.N.F.C. members to be elected by the Club Committee and to retain office until March, 31st, 1944, or until their resignation from the said Standing Committee. Vacancies shall be filled by election by the Club Committee.
7. The Standing Committee shall elect its own chairman and secretary.
8. Grants from the Fund shall be given at the discretion of the Standing Committee after the members thereof are fully satisfied with the bona-fides of the grantee. Payments to be made by the Hon. Treasurer of the Club on written instructions from the Standing Committee.
9. Any member of the B.N.F.C. may recommend a suitable member to the Standing Committee for a grant.

10. Grants shall be made without publicity, and recipients' names shall not be disclosed, and the accounts of the Fund shall be made up to 31st March each year and appear on the Treasurer's balance sheet.
11. The recipient of a grant shall fully report to the Standing Committee on the use made of the grant.
12. The existence and object of the Fund may and shall be given publicity from time to time.
13. The capital may be added to either by private subscription or by the Club.
14. The foregoing rules will be revised by the Club Committee immediately following the 31st March, 1944.

M. GAFFIKIN, President.

JOSEPH SKILLEN, } Hon.
W. G. R. SKILLEN } Secretaries.

11th October, 1938.

LIST OF EXCHANGING SOCIETIES.

1937-38.	1938-39.	
—	—	Barrow-in-Furness—Naturalists' F.C. and Lit. and Sc. Association.
1	1	Belfast—Committee of Public Museums and Art Gallery.
1	1	Committee of Public Libraries.
1	1	N.H. and Phil. Society.
—	—	Presbyterian Historical Society of Ireland.
1	—	Berlin—Zoologisches Museum der Universität.
1	1	Birmingham—N.H. and Phil. Society.
1	1	Bournemouth—Natural Science Society.
1	1	Brighton and Hove—N.H. and Phil. Society.
1	—	Bristol—Naturalists' Society.
1	1	Brussels—Musée Royal d'Hist. Nat.
—	—	Buteshire—N.H. Society.
—	1	Caradoc and Severn Valley—Field Club.
1	1	Cardiff—Naturalists' Society.
—	1	Carlisle—Natural History Society.
—	—	Chester—Society of Nat. Sc., Lit. and Art.
—	1	Coventry—N.H. and Sc. Society.
1	1	Down and Connor—Historical Society.
1	1	Dublin—N.F.C.
1	1	Royal Irish Academy.
1	1	Royal Society of Antiquaries, Ireland.
1	—	Royal Zoological Society of Ireland.
—	—	Dumfriesshire and Galloway—Natural History and Antiquarian Society.
1	1	Dundalk—County Louth Archaeological Journal.
—	1	Eastbourne—N.H., Photographic and Lit. Society.
—	1	Edinburgh—Geological Society.
1	1	Essex—Field Club.
1	1	Eton College—Natural History Society.
1	1	Frankfort—Senckenbergische Bibliothek.
—	—	Glasgow—Royal Philosophical Society.
1	1	Glasgow and Andersonian Natural History and Microscopical Society.
1	1	Guernsey—La Société Guernésiaise.
—	1	Halifax, Nova Scotia—Institute of Science.

1937-38. 1938-39.

1	—	Hertfordshire—N.H. Society and F.C.
1	—	Isle of Man—N.H. and Antiquarian Society.
1	—	Isle of Wight—Natural History Society.
1	1	Leeds—Philosophical and Literary Society.
1	1	Leicester—Lit. and Phil. Society.
—	—	Leyden—Rijks Ethnographisch Museum.
1	—	Liverpool—Geological Society.
1	—	Naturalists' Field Club.
1	—	Llandudno, Colwyn Bay and District—Field Club.
1	1	London—British Association.
1	—	British Museum.
1	1	Geologists' Association.
1	1	Linnean Society.
1	1	Natural History Society.
—	—	Manchester—Geological Association.
1	1	Lit. and Phil. Society.
—	—	Microscopical Society.
1	1	Marlborough College—Natural History Society.
1	1	Mexico—Instituto de Biologia.
—	1	Montevideo, Uruguay—Museo de Hist. Nat.
—	—	Newcastle-upon-Tyne—Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne.
1	—	Northern Naturalists' Union.
—	1	University of Durham.
1	1	Norfolk and Norwich—Naturalists' Society.
1	1	North Staffordshire—Field Club.
1	1	Northern Naturalists' Union.
—	1	Oxford—Ashmolean Natural History Society.
—	1	Perthshire—Society of Natural Science.
—	—	Plymouth Institution and Devon and Cornwall N.H. Soc.
1	1	Stavanger—Staats Museum.
1	1	Swansea—Scientific and Field Naturalists' Society.
1	1	Toronto—Royal Canadian Institute.
1	1	Torquay—Natural History Society.
—	1	Wellington, N.Z.—Royal Society of N.Z.

U.S.A.

1	—	Boston, Mass.—Society of Natural History.
1	1	Chicago—Academy of Sciences.
1	1	Field Museum of Natural History.
—	—	John Crerar Library.

1937-38. 1938-39.

1	1	Cincinnati—Lloyd Library.
—	1	Madison, Wis.—Wisconsin Academy of Sciences, Arts and Letters.
1	1	Milwaukee, Wis.—Public Museum.
—	1	New York, N.Y.—Academy of Science.
1	1	Philadelphia—Academy of Natural Sciences.
—	—	Portland, Maine—Society of Nat. History.
—	—	Rochester, N.Y.—Academy of Science.
1	—	St. Louis, Mo.—Academy of Sciences.
1	1	Missouri Botanical Garden.
1	1	San Diego, Cal.—Society of Natural History.
—	1	San Francisco, Cal.—California Academy of Sciences.
1	—	Staten Island, N.Y.—Institute of Arts and Sciences.
—	—	Tuft's College, Mass.—Eaton Memorial Library.
1	1	Washington—U.S. Geological Survey.
1	1	Government Printing Works.
1	1	National Museum.
1	1	Smithsonian Institution.

ACCOUNT No. 2. RECEIPTS AND PAYMENTS ON ACCOUNT OF THE ROBERT JOHN WELCH MEMORIAL FUND.

RECEIPTS.		PAYMENTS.	
Balance at credit of Fund at 31st March, 1938, viz :—		Miss Praeger for Bronze Portrait Plaque of the	
With Belfast Savings Bank ...	£252 5 0	late Mr. Welch ...	£25 0 0
With Northern Bank, Ltd., in		Balance at credit of Fund at 31st March, 1939, viz :—	
the Club's No. 2 Current Account	27 17 3	Cash on deposit with Belfast	
	<u>£280 2 3</u>	Savings Bank in the name	
Interest credited by Belfast Savings Bank for		of "Belfast Naturalists'	£259 0 6
Year to 20th November, 1938 ...	6 15 6	Field Club" ...	
		Balance at credit of the Club's	
		No. 2 Current Account with	2 17 3
		Northern Bank, Ltd. ...	<u>261 17 9</u>
	<u>£286 17 9</u>		<u>£286 17 9</u>

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BELFAST NATURA
HONORARY TREASURER'S ACCOUNTS
ACCOUNT No. 1. RECEIPTS AND

RECEIPTS.

Balance at credit of "General Account"
 at 31st March, 1938, viz.:—

With Northern Bank, Ltd.	£90 16 8	
On hands	1 12 7	
		£92 9 3
Subscriptions received	159 2 0	
Entrance Fees, 38 @ 5/-	9 10 0	
Excursions Account (without charging printing or postages)	24 0 2	
Club Badges sold	1 2 0	
Donation	0 10 0	
Junior Division Subscriptions	£2 16 3	
Do. Badges sold	1 1 8	
	3 17 11	
		198 2 1
		£290 11 4

Balance brought down ... ..	...	£2 6 6
Receipts in connection with the recently published 2nd edition of <i>A Flora of the North-East of Ireland</i> .		
Balance which at 31st March, 1938, was at credit of the Club's Thrift Deposit Account at Northern Bank	161 6 2	
Interest on above Deposit up to 18th January, 1939, on which date the moneys were transferred to Club's No. 1 Current Bank Account	1 12 9	
This Club's 4th and final Grant, as above	25 0 0	
Sales to date and prepaid Postage	51 9 3	
		239 8 2
Balance at debit of "General Account" at 31st March, 1939, viz.:—		
Due to Northern Bank, Ltd.	31 8 8	
Less Cash on hands	0 19 2	
		30 9 6
		£272 4 2

R. G. Henderson, Hon. Treasurer.
 18th April, 1939.

**LISTS' FIELD CLUB.
FOR THE YEAR ENDED 31st MARCH, 1939.
PAYMENTS ON GENERAL ACCOUNT.**

PAYMENTS.

Printing and Stationery	£58	9	11	
Postages	37	1	3	
Incidentals	12	6	1	
				£107 17 3
Hire of Lecture Hall and Committee Room ...		14	10	0
Lanternist's Fees		6	0	0
Conversazione Account (without charging printing or postages)		13	7	11
I.N.J. Affiliation Fee for 1939		3	0	0
Subscription, The National Trust		0	10	0
Subscription, Whitepark Bay Preservation Fund		10	0	0
Fourth Annual Grant towards publication of 2nd edition of <i>Flora</i> . See below		25	0	0
Junior Division Expenses		9	16	4
Costs of printing, publishing and distributing <i>Proceedings</i> of the Club for the years 1934/35, 1935/36, 1936/37 and 1937/38		98	3	4
Balance carried down		2	6	6
				£290 11 4

Payments in connection with the recently
published 2nd edition of *A Flora of the
North-East of Ireland*.

Accounts of Printers, Binders and Publishers	265	11	3
Costs of printing Prospectus, Insurance of Stock ; and postage and delivery expenses	6	12	11

£272 4 2

Audited and found correct.

A. M. M'KISACK.

ACCOUNT NO. 3. RECEIPTS AND PAYMENTS ON ACCOUNT OF THE BELL-WELCH MEMORIAL FUND.

RECEIPTS.		PAYMENTS. (None).	
	Interest. Principal.		Interest. Principal.
Anonymous Donation received 13th June, 1938, per Mr. J. A. S. Stendall ... ..	... .. £100 0 0	Balance at credit of Fund at 31st March, 1939, viz.:—	
Interest on Northern Bank Deposit Receipt of £100 from 14/6/38 to 16/9/38 when Fund was transferred to Belfast Savings Bank	£0 5 2	Cash on deposit with Belfast Savings Bank in the name of " Belfast Naturalists' Field Club, Bell-Welch Memorial Fund " (£100 13s. 6d.) ...	£0 13 6 £100 0 0
Interest credited by Belfast Savings Bank for period ended 20th November, 1938	0 8 4		
	£0 13 6 £100 0 0		£0 13 6 £100 0 0

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April, 1939.

R. G. HENDERSON, Hon. Treasurer.



JUL 1943

PROCEEDINGS

AND

ANNUAL REPORTS



SERIES II.
VOL. X.

PART II.
1939-1940.

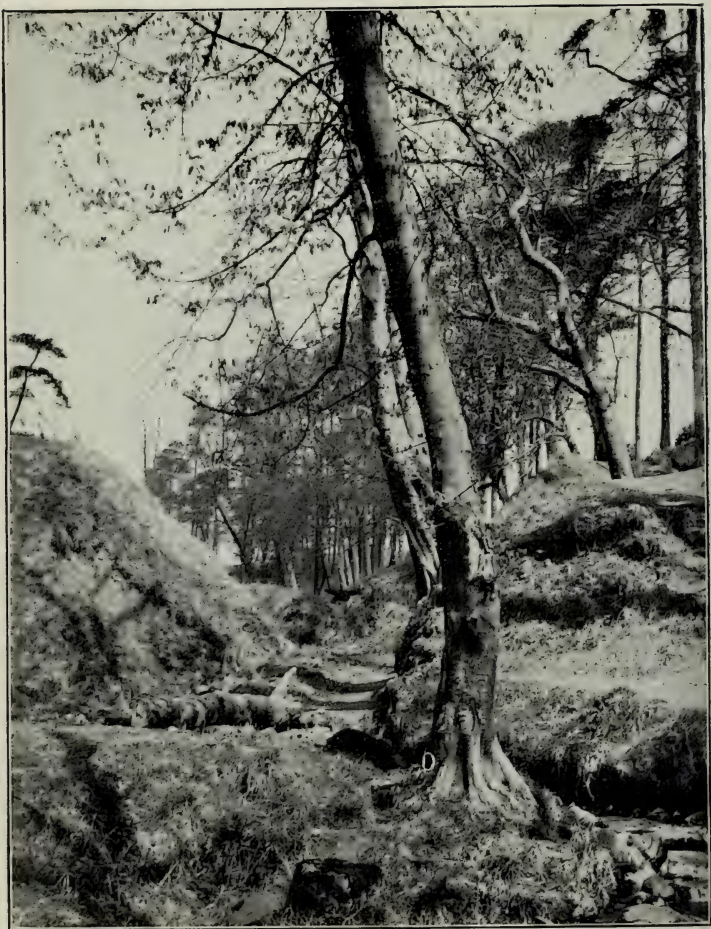
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[Photo by A. M'I. Cleland.

Carr's Glen, Belfast.

PROCEEDINGS
AND ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1940
(SEVENTY-SEVENTH YEAR)

SERIES II.
VOLUME X.



PART II.
1939-1940.

EDITOR:
A. M'I. CLELAND.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-SEVENTH YEAR, 1939-40.

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J. SKILLEN.

Hon. Secretaries Survey of Antiquities Committee :

MISS MARY GAFFIKIN.
MRS. T. H. CROZIER.

Hon. Secretary Junior Division :

MISS FELICITY BOLTON.

Members of Committee :

Retire 1940.
Dr. R. H. COMMON.
W. P. CHANDLER.
S. D. THOMPSON.

Retire 1941.
A. ALBERT CAMPBELL,
F.R.S.A.I.
ALFRED M. M'KISACK.
MISS W. J. SAYERS, B.A.

Retire 1942.

MISS MARY GAFFIKIN.
MISS E. BARRY.
Rev. W. R. MEGAW, B.A., M.R.I.A.

Honorary Secretaries :

JOSEPH SKILLEN, }
W. GRAHAM R. SKILLEN, } 25 Stranmillis Gardens,

PROCEEDINGS.

SUMMER SESSION.

SAINTFIELD DEMESNE.

Date—29th April, 1939. Conductor—Miss W. J. Sayers.
Number present—63.

A most enjoyable afternoon was spent in Saintfield House Demesne, under ideal weather conditions, through the kindness of Canon E. H. Blackwood-Price, who himself escorted the party to the "rough wood," where Nature has been left undisturbed, and later on through the gardens and conservatories.

The main object of the excursion was a study of trees in their habitats, following a lecture delivered to the Club in the Winter Session by the Conductor. At various points in the woods she drew the party's attention to the characteristic buds, leaves and flowers of the various trees, also indicating the effect on the undergrowth. Many spring flowers were seen to be coming into bloom before the foliage of the trees should intercept the sunshine.

In the enclosed gardens the Canon showed his visitors a magnificent *Thuya gigantea* and in the pleasure garden an aged oak, deemed to be over 1,000 years old. He also entertained the company with an interesting account of the happenings at Saintfield House in the '98 rising.

The hearty thanks of the Club were conveyed to the Canon by the Vice-President, A. H. Davison.

LAGANVALE BRICK AND TERRA COTTA WORKS.

Date—9th May, 1939. Conductors—T. Courtland Hunter and J. J. Hartley. Number present—80.

The pits were first visited and there a fine section of Malone Sands was seen overlying the Lower Boulder Clay. Both the sands and clays are required for the manufacture of bricks, being mixed in the proportion of 1 to 3.

After a short talk on the glacial origin of the deposits, an examination of the Boulder Clay resulted in the discovery of several pebbles of the Riebeckite Microgranite of Ailsa Craig. It was also of interest to note that much of the lower portion of the clay consisted of material which was obviously redeposited Keuper Marl.

Passing the mounds where the clay has to be weathered for eighteen months or so before use, the party moved on to the brickmaking machinery, inspecting first the pugging mill in which the clay and sand are intimately mixed. The material is then passed through cleaning rolls, where all large stones are extracted, including the highly deleterious chalk pebbles. The cleaned mixture then passes between two consecutive sets of rollers, whose functions are to crush the small pebbles to very small particles. From here the clay is forced, as a continuous slab, through a moulding and perforating apparatus on to the wire-cutting table, the wires slicing it into bricks of soft clay. The wet bricks are then conveyed to the drying sheds (long roofed buildings heated by the waste heat from the kilns and by steam pipes), where they remain for a week or more, the temperature being gradually raised to 120 degs. F. In this drying process the bricks shrink to the standard size required.

From the sheds the dried bricks are removed to the kilns, permanent structures built back to back and heated by good quality English coal. The bricks are piled to the roof of the kiln, with spaces between them, and remain for several days as the temperature is gradually raised to 1,500 degs. F. The fuel is applied and fresh fuel added in such a way that no coal can possibly come in contact with the bricks.

In addition to the making of ordinary bricks, the members were also shown the process of manufacture of various terra-cotta articles: chimney pots, ridge tiles, coping tiles, ventilating and "fancy" bricks, etc., etc.

Everything the visitors saw was of much interest and the hearty thanks of the members were expressed to Mr. Hunter and his son for a most enjoyable and instructive evening.

BALLYCASTLE.

(United Excursion.)

Date—19th-21st May, 1939. Conductors—Major A. Creery and J. Skillen. Number present—80.

This excursion included members from the Belfast, Londonderry, Route, Limavady, Tyrone and Armagh Field Clubs.

On Friday, the evening of arrival, and after tea the members visited Bonamarghy Abbey, and the carved stones at Carrickhonagh, west of Ballycastle.

On Saturday morning a start was made for the full day excursion going via Ballintoy and White Park Bay, stopping for a short time at Dunseverick Castle. The next stop was at Ballylough, the residence of Captain Traill, whose grounds and gardens were left open for inspection. The old castle, close by the dwelling-house, was examined with interest. It has an unusual feature in the shape of a dove-cote or columbarium in the tower. An ancient dug-out canoe, found in a crannoge nearby, with some unusual ornaments, found in association therewith, were shown by Captain Traill.

The next stop was at Derrikeighan old church, where generations of the Scots, brought over by Sir Randal MacDonnell in the early part of the 17th century, are buried.

On arriving at Stranocum the proprietor, Mr. R. Ford-Hutchinson, met the party and took them to inspect two raths inside his estate. One of the raths has an interesting souterrainn, and in the other, which had been excavated recently, was found a burial, and a very curious stone, a puzzle to the antiquaries assembled.

The road was then taken to Glenshesk, stopping on the way to examine two ancient ecclesiastical crosses at Mullagh-hora. At Glenbank House Major and Mrs. Creery entertained the members to afternoon tea on the lawn, the weather being perfect, and afterwards the return was made to Ballycastle.

After dinner a meeting was held in the hotel, Major Creery (President of the Route Club) in the chair, when Dr. Praeger gave a talk on "The Yew in North-East Ireland." After this a very interesting discussion took place, and afterward, on the motion of Mr. R. S. Lepper, an enthusiastic vote of thanks was passed to Major and Mrs. Creery for their generous hospitality. The Hon. Secretary (Mr. Joseph Skillen) was also thanked for the trouble taken in organising the excursion.

On the 21st the forenoon was free, and in the afternoon an excursion was held to Fair Head and Murlough Bay, the conductors being A. H. Davison and V. F. Grainger. This excursion was chiefly arranged for the botanists and geologists, and was most informative and enjoyable.

Looking from Fair Head, owing to an unusual clearness in the atmosphere, Arran Island, in Scotland, and the Paps of Jura appeared surprisingly near. Most of the members essayed the long walk down from the headland to Murlough

Bay, and the very arduous climb back. Beside the old church at the bay, and amongst the talus from the headlands, some archaeologists were excavating an iron-age site.

During the excursion, although there were plenty of fine cloud effects, no rain fell to mar the pleasures of the outing. The botanists of the party were well pleased with the results of their work during the two days. No acclivity or declivity seemed to deter them from their search for the rarer plants.

After tea there were the usual partings with the unanimous opinion that it was one of the most successful outings of the united excursions of the Field Clubs.

DRUMBO AND FARRELL'S FORT.

Date—23rd May, 1939. Conductor—J. Skillen.
Number present—26.

This was an evening excursion and at the round tower of Drumbo a discourse was given by A. A. Campbell on the use and origin of such structures, during which he pointed out that, judging by its masonry and doorway, Drumbo was one of the earliest erected, the stump only now remaining.

Farrell's Fort is a very imposing earthwork, with a fosse about 30 feet deep.

LOUGH BEG AND BALLYSCULLION.

Date—3rd June, 1939. Conductors—Miss W. J. Sayers, B.A., and V. F. Grainger. Number present—46.

In brilliant sunshine the members explored a district unknown to many of them—the north-eastern shore of Lough Beg. The route lay through Antrim and Toomebridge, where members of Cookstown Club joined the party, to New Ferry.

After a talk by the President, Mr. J. J. Hartley, M.Sc., on the diatomaceous clay, which was conspicuous on the Derry side of the lough, the party made its way along the shore of the lake towards Ballyscullion East and were rewarded by finding several plants with which they were not familiar, including Meadow Rue (*Thalictrum flavum*) seen in abundance, and here and there in full bloom; also Flowering Rush (*Butomus umbellatus*) coming into bloom, and Common Arrow-head (*Sagittaria sagittifolia*). The water plants were suffering badly in consequence of the low level of the lake, some of them being stranded many feet from their natural home. Even the water lilies lay unhappily in

a hollow which was no longer a pond. An unwonted feature of the excursion was the flocking of the thirsty naturalists to the wells of scattered farmhouses, where kindly hands supplied copious draughts from nature's store.

The absence of the bird-life to be expected in that quiet countryside—and indeed previously noted there—was disappointing, but most of the party appeared to be more interested in plants.

On the homeward journey a short halt was made at Moneyglass to visit the magnificent grotto attached to the R.C. chapel there, constructed of rough-hewn Wicklow granite, and to get a last glimpse of the waters of the lake, the Sperrins in the evening light making a soft and beautiful background to the scene.

ELLIS'S CUT, LOUGH NEAGH.

Date—10th June, 1939. Conductor—E. N. Carrothers.

The party met at the Old Museum and went via Drum Bridge, Lambeg, Lisburn, and Magheragall, and then along the southern limit of the basaltic plateau of County Antrim. Near Soldierstown a steep descent from the plateau led to the Broadwater on the Lagan Canal.

A few miles further on the party stopped to inspect the ruins of the old church at Aghagallon. Here the conductor (Mr. E. N. Carrothers) gave a brief account of the place based on the writings of Reeves and O'Laverty.

The earliest record of Aghagallon is under the year 799. A record report made in 1622 states that the church was then ruinous. It was observed that the bygone custom of avoiding the north side of a church as a place of interment was particularly noticeable here.

The next stop was at Leansmount, where the party walked to Ellis's Cut, which connects the Lagan Canal with Lough Neagh. Here by the lough shore County Down separates County Antrim and County Armagh by less than one mile. The botanists in the party saw a number of the interesting plants to be found in this secluded corner of County Down.

Afterwards the party went to Lurgan, where a visit was paid to Shankill Graveyard, where an 18th century tombstone with a curious inscription was explained by Mr. Joseph Skillen.

Before returning to Belfast the party spent a short time round Brownlow House.

Two plants of considerable interest were found during the excursion—Lesser Reedmace (*Typha angustifolia*) in a lake near Brownlow House, and Marsh Meadow Rue (*Thalictrum flavum*) in a meadow by the lough shore at Ellis's Cut. The finding of the latter adds a new plant to the flora of County Down.

CRAWFORDSBURN GLEN.

Date—20th June, 1939. Conductors—Miss W. J. Sayers and Miss M. P. H. Kertland. Number present—50.

An evening excursion was made to this glen by kind permission of Mr. W. J. Stewart, M.P. Though there was little water in the stream in consequence of the dry weather in May, the beauty and verdure of the glen were in no way lessened. *Melica uniflora* (Wood Melick Grass) was noted and a fine colony of *Geranium striatum* was found to have established itself on the bank of a stream in the demesne. Efforts to rediscover *Carex strigosa*, previously noted here, proved unavailing.

CULLAMORE MOUNTAIN AND ALTADAVIN GLEN.

Date—24th June, 1939. Conductor—T. G. F. Paterson. Number present—50.

An early start was made from the Old Museum building, College Square North, and the journey was very interesting.

At Portadown the road was taken through Woodhouse Street for Moy and Dungannon. The house in this street bearing the tablet marking the birthplace of Sir Robert Hart, the distinguished nineteenth century administrator, was pointed out.

Passing through Charlemont the members were informed that this was the borough which returned Grattan to the Irish Parliament, as well as the site of the historic Charlemont Fort, the fort having met the fate of many historic buildings during the recent rebellion.

The party next passed through Moy, so unlike the traditional Irish town, as it was built by a former Lord Charlemont on a Continental model.

Proceeding through Donaghmore the high cross standing in the street was pointed out, as was the rectory at Castlecaulfield, where Rev. George Walker, of Derry siege fame,

resided. Close by Mrs. Chembre brought the botanical members to a bank where there is growing a rare variety of Valerian.

At Dungannon a halt for refreshments was made. When Paranaur—the home of the Burges family—was reached Mr. Thomas Greer, J.P., Hon. Secretary, Tyrone Field Club, joined the members. He had received permission to visit this place for the purpose of examining some antiquities preserved there, but unfortunately time did not permit, the journey being continued to Altadavin. Before reaching this place Favor Royal was passed, the seat of the Moutray family. Through this property the boundary runs separating Monaghan and Tyrone, and thus Northern Ireland and Eire.

Altadavin Glen was up to recent times quite inaccessible to wheeled traffic, but since it was taken over by the Ministry of Agriculture for afforestation it can be reached in this way, but over an execrable road.

The glen is one of the finest viewpoints in the North, and contains St. Patrick's Chair and Well, which has been a place of pilgrimage from the dawn of Christianity, and may actually have been pagan in its origin. The Chair has been held in great esteem in the past, and, indeed, up to the present. Carlton relates in his tale "Shan Fadh's Wedding" that it was here that Shan Fadh and Mary pledged their troth and to the present this custom is followed.

During the visit to the glen a great variety of wild flowers was noted, but none of outstanding rarity. Some of the ancient forest which covered the glen still remains, such as hazel and holly, and the whole place is a mass of blackberry bushes.

The party having assembled on a level sward Mr. A. H. Davison gave a talk on the geology of the glen and its rock formation. It had been stated that the glen, which consists of two large parallel glacial dry gaps divided, geographically speaking, by a hog's back, had been formed as overflow channels during the retreat of the Donegal ice in the glacial period. Mr. Davison pointed out that his belief was that the two parallel valleys were really carved out by a river, which had now shrunk to a rivulet.

Mr. Paterson also gave a talk on the monuments and folklore of the district, and repeated some of the tales, mentioning some of the words still in use in Carleton's

country, as well as ancient rites still practised at Hallowe'en and midsummer eve.

The next stop was at the double horned cairn of Carnagat, which is a very rare type of prehistoric burial monument.

Proceeding by Glen Road to Clogher time permitted a visit to Carnpadrig. This also is a prehistoric burial cairn, but very much disturbed, possibly by treasure-hunters. It was interesting to note the great quantities of bog myrtle.

From Clogher the route led to Armagh, and after a very pleasant drive through the Clogher Valley this city was reached. After tea a formal meeting of the Club was held, presided over by the Vice-President (Mr. A. H. Davison), when some junior members were elected.

Returning from Armagh to Portadown the old coach road was followed. From some of the higher hills on this road there are very extensive views. Nearer at hand are the Antrim hills, and further away the Sperrins, the Mourne, and the Slieve Gullion range.

It may be noted in reference to recent inquiries about the variation in distribution of the cornrake that not a single one of these birds was heard all day.

DUBLIN AND DISTRICT.

(Long Excursion.)

Date—11th-14th July, 1939. Conductor—J. Skillen.

On arrival at Dublin after a comfortable journey in reserve compartments, a high tea was enjoyed in the Standard Hotel, which was the headquarters of the Club during the excursion. After tea, Stephen's Green, with its statuary, was visited, and also the National University, returning to the hotel through Harcourt Street to examine the interesting Georgian houses in the neighbourhood. Not many fanlights now show "The White Horse," the Hanoverian emblem.

The next morning an early start was made for the Vale of Avoca and Glendalough in brilliant weather, the sun shining with "ardent frown," to quote Sir Walter Scott. The "Meeting of the Waters" was soon reached and the sylvan beauty of the place has not been exaggerated in Moore's well-known poem.

After a few hours spent in this beautiful valley, the journey was resumed to "Glendalough of the Seven

Churches." The road to this place was through the Wicklow Hills—dells and valleys of great beauty. Arriving at Glendalough, and before making closer acquaintance with the ecclesiastical ruins, lunch was enjoyed in the shade of the trees. Afterwards the cathedral, the round tower, St. Kevin's Kitchen (which is really a church) were visited in turn as well as the Bullaun Stone, where, tradition states, a doe filled it with her milk each morning to sustain a foundling who had been rescued by St. Kevin. It is interesting to record that a member of the party (Miss L. C. Rea) noted seven bullaun stones during the excursion. Leaving Glendalough the road was taken by the upper lake to see St. Kevin's Bed, which is a cave in the face of the cliff, believed to have been a rock-hewn tomb such as are found in the East.

The return to Dublin was along the slopes of Sugarloaf Mountain which looks, with its outcrops of white limestone, as if it were dusted with sugar.

Next morning after breakfast the party set out to visit the various historic places in central Dublin. First Trinity College, where was experienced the first and only disappointment of the excursion, for the library was shut, and therefore no opportunity of seeing the Book of Kells. Other buildings that were open were inspected in turn—the Examination Hall, the Chapel, the Dining Hall, all with their numerous portraits of past celebrities, including one of Good Queen Bess, the Foundress of the University.

The next visit was to the National Library where Dr. Best, chief librarian, and his assistants showed the party round. Leaving here the Dail Parliament House was visited, the members not being in session; and, lastly, the National Museum, where courteous and kindly attendants accompanied the party and showed the chief exhibits.

After luncheon the members drove to Enniskerry village for Powerscourt demesne. This visit was very enjoyable, although the weather was moist, but not sufficiently so to mar the pleasure of the members. A walk of about a mile through this beautifully wooded demesne brought the party to Powerscourt Castle where the grounds and gardens, kept in most beautiful order, were much admired. Many statues, illustrating classical mythology, adorn the grounds, and the view from the front of the castle, looking down the descending terraces to the ornamental waters, with the County Wicklow mountains as a background, is unsurpassed.

The forenoon of Thursday, 13th, was devoted to visiting College Green, the old Irish House of Parliament. The most interesting things to see here are the old silver-gilt mace of the House of Commons, the roof-high tapestries, woven by the Huguenots, illustrating the Siege of Derry and the Battle of the Boyne, the Waterford cut-glass chandelier, showing the spectrum in every crystal. The next place to be visited was Dublin Castle, the State apartments and the Chapel Royal. One is much impressed by the past glories of this place, the crimson and gold of royalty, now dusty and tarnished, yet carefully preserved by the Government of Eire.

The Cathedrals of Christ Church and St. Patrick were next visited. In the former are the tomb of Strongbow and the mummified heart of St. Lawrence O'Toole, and in the latter the graves of Dean Swift and Stella; here also is the Royal pew, last occupied by the late King George V. and Queen Mary, of the old regime, now the pew of the President of the State, of the new regime. St. Patrick's also has the crimson upholstered chair which was used by William III when he attended service in the cathedral.

The last visit, just before leaving for home, was to St. Michan's Church, which is noted for the mummified bodies of the dead in the vaults beneath. For some reason, not explained, bodies deposited here, and even coffins, do not decay. To visitors are shown the body of a Crusader, over 700 years dead, and yet his skin has not entirely decayed, and it is curious to see the coffin of the murdered Lord Leitrim as fresh as when it was put in over half a century ago.

On the return to the hotel, bags were packed, the bus being in waiting to take the members to the train. On this train there were many happy excursion travellers, not least being the members of the Field Club who attended the annual long excursion of 1939.

MINERSTOWN AND TYRELLA.

Date—22nd July, 1939. Conductors—V. J. Grainger and E. N. Carrothers.

(No report.)

CARR'S GLEN.

Date—25th July, 1939. Conductor—A. H. Davison.
Number present—20.

At a viewpoint where a number of streams could be seen coming off the escarpment the Conductor gave a talk

on these streams and their courses from sources to Belfast Lough, with special reference to the Milewater river which forms Carr's Glen, and flows by Antrim Road Waterworks and Alexandra Park to the Docks.

The effects of river erosion in the Glen were then examined, and also the various strata and some dykes. At the waterfall fossils were obtained from the Lias and Cretaceous beds so well exposed there, but nothing was found worthy of special mention. (See Plate 2.)

NEW GRANGE AND DOWTH.

Date—5th August, 1939. Conductor—J. Skillen.
Number present—32.

The party proceeded by train to Drogheda, where a bus was in waiting to convey them to Dowth and New Grange. These sepulchral remains were visited in turn, candles provided by the caretaker being brought into service. The above places are only two of a number constituting the tumuli of "The Royal Cemetery of Brugh Na Boinne."

The next stop was at the Hill of Slane on which stand the ruins of a Franciscan monastery, consisting of the monastic buildings and the church, but perhaps more celebrated by the visit of St. Patrick to the hill when he first arrived to evangelise Ireland. The view from here was magnificent, including the Hill of Tara.

On the way to Navan (the capital town of Meath) a stop was made at Donaghmore to inspect the ecclesiastical remains here, which include a perfect Round Tower, 100 feet high.

Lunch was partaken at Navan, as the members sat on the banks of the Boyne, where that river joins its waters with those of the Blackwater.

Passing the magnificent ruins of Athlumley Castle a halt was made at Beauparc, to visit the Boyne gorge at this place, which was reached after considerable difficulty.

The last place visited was Rosnaree, the burial mound of King Cormac MacArt, and the road to Drogheda was then taken by Oldbridge, the site of the battle of the Boyne.

On the train home from Drogheda a high tea was enjoyed, the weather during the whole day having been perfect.

INCH ABBEY.

Date—19th August, 1939. Conductor—J. Skillen.
Number present—36.

On arriving at the abbey Mr. A. Albert Campbell gave a talk to the members, who were assembled on the green-sward at the cloister garth, pointing out that it was a very ancient religious foundation—the usual Celtic monastery with attached church.

The Annals of the Four Masters record that it was plundered by the Danes in 1001. The remains of the ancient church were in existence less than a century ago, when they were demolished to make room for a sepulchral vault.

In 1180 John de Courcy erected a monastery here (close to the site of, and not interfering with, the old Celtic foundation) and brought over Cistercian monks from Furness Abbey to conduct it.

Of the buildings at Inch only the ruins of the church remain, with fragmentary parts of the domestic buildings. Unlike its sister Grey Abbey, the church was furnished with aisles. The chancel has three beautiful lancet windows of pointed design which succeeded late Norman architecture.

Supplementary to the talk given by Mr. Campbell, the Honorary Secretary (Mr. Joseph Skillen) gave illustrations of the signs used by the monks in communicating with each other. The monks of the Cistercian Order, in addition to their vows of poverty, chastity, and obedience, had a rule which strictly enjoined silence. Under these conditions an elaborate system of signs was evolved to enable the monks to communicate one with another.

The signs used for the various officials of the abbey, the books used in the church services, the food, the clothing, etc., were shown. This rule of silence is not observed in modern Cistercian houses, save with the Trappists, who are a branch of the Cistercian Order.

The distinction between monks and friars was pointed out, and although it had been recently, although erroneously, stated that it was friars who peopled and built Grey Abbey, the friars did not come to this country until long after both Grey Abbey and Inch Abbey had been founded.

These abbeys were not built by the monks but by guilds of masons, who erected the cathedrals and abbeys in the Middle Ages, and who left their masons' marks on the stones.

On leaving Inch Abbey the road was taken to Downpatrick, where the cathedral was visited, and also the grave of St. Patrick. Before leaving for home tea was enjoyed in the Road House, Spa. Fine weather enhanced the pleasure of the excursion.

NOTE.

The Conference arranged to meet at Londonderry on September 22nd-24th was cancelled owing to the outbreak of War.



WINTER SESSION.

The authors of the various Papers, of which abstracts are given, are alone responsible for the views expressed therein.

CONVERSAZIONE.

NOTE.—Owing to the outbreak of War the Annual Conversazione was abandoned.

DALRADIAN ROCKS: THEIR GEOLOGY AND SCENERY.

At the opening meeting of the Winter Session on Saturday, 28th October, held in the Museum Buildings, College Square North, at 3 p.m., the President (J. J. Hartley, M.Sc.) delivered an address on above subject before a large and interested audience.

The President said that he was about to give a short account of what were, so far as is known at present, the oldest rocks found on the mainland of Ireland. He pointed out on the map the four chief areas of Galway, Sligo, Donegal and Derry, and north-east Antrim where they are exposed. Each area was seen to lie near to the coast and they were separated from each other by inlets of the sea. The scenery to which the rocks gave rise included some of the finest in the country. The name Dalradian, given to these particular rocks forty years ago by the late Sir A. Geikie, was derived from the old kingdom of Dalriada, but the original adjective had to be modified for euphonistic reasons.

The rocks themselves represent the debris from the sea-shore of a long vanished continent once lying to the north-west. The sands and muds of the old sea beaches had been hardened and altered to give rise, respectively, to the massive quartzites now forming the Twelve Bens of Connemara, as well as Errigal and Muckish; and to the softer mica schists which build up so much of Inishowen and the Sperrin mountains. At intervals lime secreting organisms, most probably algae, had secured from the sea-water the materials which now form the limestones of Torr Head and Dungiven, whilst submarine volcanoes made at intervals a contribution of lava to the slowly accumulating pile of sediment.

At subsequent periods the trough in which the whole series had been deposited was subjected to intense lateral pressure and was gripped, as it were, in the jaws of a vice.

The rocks overflowed the edges of the trough, rolling forward in some instances like the waves of the sea or, where they were more rigid, sliding forward like a launched ship.

In this process molten material, now represented by the granites of Galway, Donegal and Tyrone, was squeezed and sucked up from below and oozed out along the sides of the basin.

The President explained that the details of such an eventful history were somewhat difficult to interpret. The presence of limestones, quartzites and mica schists at several horizons did not greatly help, for there were too many of them. Fortunately, however, there were at hand two special types of rock which acted as threads to guide one through the labyrinth and to disentangle the confused complexity. These two bands consisted of a "Boulder Bed" in Donegal and Mayo; and a thin layer of volcanic debris, the "Green Beds" of Antrim and Tyrone. Through the recognition and tracing out of these two horizons it had been possible, during recent years, to gain a clearer insight into the structure of the Irish Dalradian rocks.

The President concluded by showing a series of views illustrating typical Dalradian scenery. It was pointed out that both the finest cliff and mountain scenery were found amongst the quartzite beds, owing to their relative hardness; whilst the softer mica schists and limestones gave rise to a more subdued topography, though one which, in the Sperrin country especially, had a characteristic charm of its own.

DRAGON FLIES.

The second meeting of the Winter Session was held on Saturday, 25th November, at 3 p.m., when Professor Gregg Wilson, D.Sc., gave a lecture on above subject. There was a very good audience, and the many interesting facts placed before the members were dealt with in the Professor's well-known extremely lucid and pleasing manner.

The lecture was intended to call attention to remarkable adaptations of structure to function, both in the adult dragonfly and in the larval or "naiad" stage.

The adult is insectivorous, and seems to feed exclusively on living prey, consequently speed and good sight are important. The great wings in some species are kept wide-spread, when the insect is at rest, ready for a quick "take off"; and in some there is an amazing development of

speed, upwards of 20 miles per hour being recorded, and even 60 miles per hour, in the case of one Australian species.

The head shows great compound eyes, and it has been claimed that the dragonflies have the best sight of all insects. The mouth is noteworthy for having both upper and lower lips mobile, an arrangement which facilitates the picking of captured prey from the remarkable insect-trap that is formed by the forwardly-directed legs and their spines. The mouth also is provided with powerful mandibles, with which wings and other inedible parts of a victim are snapped off, to be discarded.

The whole thorax and its appendages are curiously modified in connection with the construction of the trap already referred to. It is as if there had been a rotation of the thoracic rings, with the result that the legs are shifted forwards and the wings backwards. Thus the legs instead of being below the wings are in front of them; and the fore wings instead of being in front of the hind wings are in many cases directly above them. The legs have naturally lost their ordinary function, and are not used for walking; they can hold fast, and they are used for crawling up weeds, but their chief use seems to be in connection with feeding.

The abdomen of the dragonflies is remarkable for its great length, as well as for its wonderful colours. The length is associated with the egg-laying habits. In some species eggs produced by the female are got rid of during flight by dipping the tip of the abdomen into water. In others the abdomen is plunged into the water, and the eggs are inserted into slits made by an ovipositor in the stem or the under-surface of the leaves of water-plants. In either case the long abdomen is an advantage.

The larvae of dragonflies show many devices to fit them for their mode of life. Those connected with respiration and those for securing food are of special interest. All breathe by tracheae exposed to water by the general surface or by special tracheal gill-plates or filaments. The light-bodied dragonfly larvae (*Zygoptera*) have three leaf-like posterior gill-plates; while the heavy-bodied species (*Anisoptera*) have developed remarkable internal gills in a special expansion of the rectum, which serves as a gill-chamber. Rather curiously both types of breathing apparatus have their use in progression: the gill-plates of the one type are waved to and fro as propellers, while the gill-chamber of the other type by sudden contraction can drive the larva forwards by rocket action.

A unique peculiarity of all dragonfly larvae is the modification of the lower lip to form a "mask," so-called because it largely covers the face region. This mask is constructed out of the ordinary parts of the insect's lower jaw, but is remarkable for the development of the base parts. These in the dragonfly larva are so long that they are stowed doubled-up under the head and thorax. They and the terminal grasping parts resemble a bent arm with a hand at the end. This structure can be shot out suddenly, and enables the rather sluggish larva to lie concealed, till chance sends a possible victim within reach of the long arm.

The lecture was illustrated by mounted specimens of local dragonfly adults and by living examples of the different types of larvae.

LYLE'S HILL: A NEOLITHIC HILL SITE.

The third meeting of the Winter Session was held on Saturday, 20th January, at 8 p.m., when Dr. E. E. Evans, M.A., F.S.A., gave a lecture on above subject before a very good and appreciative audience.

The lecturer said that:—It was Wing-Commander Wright, of Aldergrove, who spotted from the air evidence of the existence at Lyle's Hill of the site of a neolithic village with an encampment of nearly 13 acres. Two seasons' excavation work have brought to light many new facts.

By means of a series of maps Dr. Evans showed the importance of the site as a meeting-place for the hill-tracks of South Antrim, at a time when most of the lowlands were encumbered with forests. Evidence was found of the cultivation of wheat and the rearing of pigs. The most remarkable feature of Lyle's Hill, said the lecturer, was a burial cairn on the hill-top, the erection of which had been accompanied by elaborate ritual. Several bodies had been cremated together, and on the burning pyre thousands of flint tools, arrowheads, stone implements, personal ornaments and potsherds had been thrown, including stone axes brought from south-east Antrim, and beads imported from overseas. At a much later date the site continued to be venerated, for burials were made in urns dating from various times in the Bronze Age and early Iron Age, and even in the early Christian period someone had deposited amber and glass beads alongside the ancient burials.

The cairn was enclosed in a circle of standing stones, and had a false entrance formed by a stone slab elaborately

carved in a style which was best paralleled in western Germany, a region to which ancient Ireland exported its gold ornaments. Dr. Evans showed how many of the elements of early culture had survived down to our own day. Lyle's Hill, he concluded, must have been the metropolis and sacred centre of a wide area, and further excavation at some future date should reveal more details concerning the daily lives of a people who laid the foundations of Irish civilisation.

The work at Lyle's Hill was carried out with the assistance of the Prehistoric Research Fund administered by the Belfast Museum, supported by the Unemployment Relief Grant of the Ministry of Finance.

A short discussion followed a most interesting lecture, which was illustrated by many very clear diagrams and excellent lantern views.

“ SOME THOUGHTS ON THE NEW FLORA OF THE NORTH-EAST OF IRELAND.”

The fourth meeting of the Winter Session was held on Saturday, 17th February, at 3 p.m., when Dr. R. Ll. Praeger, D.Sc., M.R.I.A., gave a lecture on above subject, during which he said:—

The problems which the field botanist has in mind in investigating the plant population in any area, large or small, may be summed up in a series of questions:—What plants go to make up the local vegetation? Where do they grow? Whence did they come? How did they reach their present stations? And when did they arrive?

A book such as the one recently issued by the Field Club attempts to answer the first two of these questions by presenting a list of local plants with an indication, general or detailed, of where each is found; and this is as far as work in the field will directly take us.

The remaining questions of whence, how and when are more difficult. The solution of the first of them proceeds from a study of the distribution of the plants in surrounding areas; this usually furnishes clues as to their origin. The Irish flora, for instance, devoid of any well-marked forms not also found elsewhere, was derived mainly from the great land-mass lying to the eastward, though in a few very interesting cases the plants came from the far west—from northern North America,

The *how* involves a study of the methods by which plants migrate, and especially, in the case of an island such as Ireland, the question of trans-marine dispersal. The *how* combines with the *when* in the fact that at various times in the past Ireland has formed portion of the European mainland. Geology has to be appealed to in an attempt to determine at what periods Irish plants would have had an opportunity of immigrating from the Continent over land surfaces, for the difficulties of trans-marine migration are much greater than those which confront plants which have only to traverse continuous surfaces of land.

The lecturer then discussed the question of future field-work in the Belfast Club, and suggested that instead of limiting themselves any longer to the flora of Down, Antrim and Derry, botanists should aim at extending their activities to further investigation of District 10 of "Cybele Hibernica"—the counties of Armagh, Monaghan, Cavan, Tyrone and Fermanagh.

An animated discussion followed, in which several members took part.

LANTERN VIEWS OF SUMMER EXCURSIONS, ETC.

The fifth meeting of the Winter Session was held on Saturday, 16th March, at 3 p.m., when a large variety of views taken on the Summer Excursions was shown, in addition to a number of others of a wider range.

Those contributing views were:—Miss M. B. Cahoun, Mrs. A. A. Campbell, Miss M. L. Dunlop, Miss M. Muir, Miss I. Elliott, A. A. Campbell, W. P. Chandler, W. S. Cordner, J. S. Loughridge, A. M'I. Cleland.

All the slides shown were of excellent quality and were described by Miss M. L. Dunlop, J. Skillen and A. M'I. Cleland.

Special mention must be made of some beautiful coloured subjects exhibited by Miss M. L. Dunlop and J. S. Loughridge.

The meeting was very well attended and the various views shown aroused much interest.

ANNUAL MEETING.

The Annual Meeting was held in Museum Buildings, College Square North, on Saturday, 20th April, 1940, the President (J. J. Hartley, M.Sc.) in the chair. The following Reports were presented:—

ANNUAL REPORT.

In presenting the seventy-seventh Annual Report your Committee has pleasure in recording that the activities of the Club have been satisfactorily carried out during the past Summer and Winter Sessions.

During the year 20 members were elected. Against this there was a loss, through deaths, resignations and lapsed memberships, of 48, showing a decrease of 28. The roll of members now stands at 460.

The Committee desires to put on record its deep regret at the loss by death of the Rev. E. M. Gumley. He was a keen Field Naturalist and with a view to interesting others in the pleasures of nature he founded the Route Field Club, which at present is in a flourishing condition; and when he was called to Clanabogan as rector of that parish he founded the Omagh Field Club, of which he was honorary secretary up to the time of his death. His loss will be deeply felt, especially by the members of the Omagh Club, and it is hoped that the activities of that Club will not suffer by his removal.

During the year Mr. F. Adens Heron has passed away. He was our oldest member, joining in 1876, 63 years ago. In all this long period he kept in close touch with the Club, attending our meetings and excursions up to the last. When the publication of the new *Flora* was inaugurated he gave a handsome donation towards the cost.

In the past year thirteen field meetings were held, which on the whole were fairly well attended. There was also a number of sectional excursions.

At the beginning of September War broke out, and this necessitated the cancelling of the Conference arranged to be held at Londonderry. From the same cause the Annual Conversazione was cancelled, which was a regrettable necessity as it is our most important function in the year. It also brings to the notice of the public, in a special way, our activities in the fields of Natural History and Archaeology.

The united week-end excursion was held at Ballycastle, when there was a fair representation from the other Clubs, especially from Londonderry. To Major and Mrs. Creery our warmest thanks are due for the trouble taken in making all the necessary arrangements, and for entertaining the members to afternoon tea at their residence, Glenbank House.

To our five affiliated Clubs a new one has been added, the South Armagh Ramblers' Field Club, which we warmly welcome into our ranks.

During the year the Welch collections of mollusca and scientific negatives, purchased from the trustees of his estate by the Field Club for presentation as a memorial to R. J. Welch, have been offered to the Municipal Museum with certain conditions attached. In this connection a report will be presented at this meeting.

It was considered advisable, owing to the War, to reduce the number of lectures in the Winter Session, so that only five were delivered. The attendance at the lectures was most satisfactory, considering that they were held on Saturday afternoons in order to obviate the difficulties of the "black-out."

For courtesies extended to us during the excursions our best thanks are due to the following: Canon Blackwood-Price, Saintfield Demesne; T. C. Hunter, J.P., Laganvale Brickworks; W. J. Stewart, M.P., Crawfordsburn; and Capt. Traill, of Ballylough House.

Also our thanks are due to the Press for reporting our meetings and to the various Scientific Societies who exchange their publications with us.

J. SKILLEN,	}	<i>Hon.</i>
W. G. R. SKILLEN,		<i>Secretaries.</i>

OBITUARY.

F. Adens Heron.	A. R. Hogg.
John M. Colton.	James D. Laird.
Mrs. R. G. Henderson.	Peter Warnock.
Rev. E. M. Gumley.	Mrs. A. M'I. Cleland.
F. W. Henry.	Kathleen Johnston.

REPORT OF LIBRARIAN.

The work continues as usual and the list of Exchanges is maintained as in former years.

Further progress has been made in completing various sets of periodicals, thereby increasing their usefulness.

A list of Exchanges is appended.

W. M. CRAWFORD, *Hon. Librarian.*

REPORT OF BOTANICAL SECTION.

During the summer three excursions were held. The season was irregular and a bad one for plants in general.

The first excursion was held on July 29th to Brown's Bay and the north end of Islandmagee and was conducted by Mr. E. N. Carrothers. Although a search for *Picris echioides* Linn. (the Bristly Ox-Tongue) proved fruitless, there seemed to be a fair number of places where it could have occurred, and a more thorough search may yet confirm this record. The stations for *Parnassia palustris* Linn. (the Grass of Parnassus) and *Ligusticum scoticum* (Scottish Lovage) were examined, both of which seemed to be flourishing vigorously. The former plant occurs in Antrim and Derry mostly near the coast, but has not been seen so far in Co. Down, the nearest station to the latter county being Woodburn Glen. The plant is calcicole and might easily be found on the limy soils of the Downpatrick-Ardglass district.

The second excursion was held on August 12th to Carnalea, Dr. M. J. Lynn being the conductor. Mr. Lepper kindly conducted the members from Carnalea Station to the shore through the grounds of Elsinore House. On reaching the shore Dr. Lynn gave an explanatory talk on the Marine Algae, pointing out that the shore could be divided into zones as far as the seaweeds were concerned, different seaweeds being characteristic of the different zones. The zoning was due to the different periods that the various seaweeds could withstand drying between tides. Afterwards the members were very kindly invited to tea by Mr. Lepper.

On September 2nd there was a combined excursion of the Geological Section and the Botanical Section to Newcastle and Glassdrummond, conducted by Mr. A. H. Davison. On this occasion very few members were present owing, no doubt, to the imminence of War. No plants of outstanding interest were found.

During the season a number of interesting plants was added to the Herbarium at the Municipal Museum by various members of the Section, but many local plants are still required.

On December 2nd, 1939, a meeting of the Section was held in Old Museum, about sixty being present.

A discussion took place as to the best way to encourage members to take a more active part in the work of the Section; and Dr. Praeger kindly offered to conduct an excursion in the spring of 1940.

K. M. BOURKE, *Hon. Secretary.*

REPORT OF GEOLOGICAL SECTION.

The following sectional excursions were held in 1939:— April 15th, Barney's Point, Islandmagee; conductor, Mr. J. J. Hartley. September 2nd, Bloody River and Glassdrummond; conductor, Mr. A. H. Davison. September 16th, Cultra and Holywood; conductors, Mr. J. J. Hartley and Mr. A. H. Davison.

At Barney's Point a walk along the shore, and then inland to the quarry on the main Whitehead road, provided a very complete section of the various rocks found in Islandmagee.

It was pointed out by the conductor that the Rhaetic and Lias shales are so alike in appearance that they can only be distinguished by their fossils. On searching, many of the typical Rhaetic lamellibranch, *Pteria contorta*, were found. This find is important, as the Rhaetic bed is not indicated, at this point, on the published geological maps.

The finding of numerous ammonite fragments at higher horizons showed the presence of the Lower Lias shales.

On the railway bank, south of Whitehead, an excellent example of the columnar structure of the lower Basalts was visited. (See *I.N.J.*, vol. IV, p. 209.)

On the Glassdrummond excursion, the Mourne Dyke Swarm was studied as well as possible in the time available.

At the mouth of the Bloody River the conductor drew attention to the quartz-felspar-porphyry dyke, which appears to be part of a ring dyke or cone sheet encircling the Mourne Mountains. The continuation of this dyke was examined at Glassdrummond, where it is composed of an outer ring of basalt and an inner ring of quartz-felspar-porphyry, while at the junction of the rings the two rocks form a hybrid porphyry.

At Cultra the lower portion of the Permian succession was examined, no fossils being found. An interesting point observed was the sharply defined areas of seaweed, that growing on the limestones and also on a dyke of dolerite being *Fucus* while on the more open-textured sandstones a species of *Ulva* flourished.

The overflow channels about a mile N.E. of Holywood Station were visited. Here the conductors gave an interesting talk on the probable origin of the channels, when Belfast Lough was blocked by a tongue of Scottish ice and the drainage of the Holywood Hill area was in a westerly direction towards Belfast.

J. K. CHARLESWORTH, } *Hon.*
W. J. WEATHERUP, } *Secretaries.*

REPORT OF ZOOLOGICAL SECTION.

The Zoological Section held two interesting excursions during the season. The first outing was by boat from Donaghadee to the Copeland Islands on the 13th May. The objective was the bird life on the islands, and the party was well rewarded in the number of individual birds belonging to some 19 species which were seen during the afternoon. Nesting was in full swing, and there was ample opportunity for studying nests, eggs and young. The second excursion was held on the 15th July to Rock Angus in the mouth of Strangford Lough. The Section left Killyleagh by fishing boat and had a pleasant run through the Narrows to Rock Angus. The animals seen during the afternoon included seals, porpoises, gannet, heron, and other common birds of the seashore. Sea urchins, sponges, etc., also were found. A drag net was filled with sea gooseberries and other coelenterata.

J. S. LOUGHRIDGE, *Hon. Secretary.*

REPORT OF ARCHAEOLOGICAL SECTION.

The first excursion of this Section was to Portmore on May 12th, the first stop being at the Middle Church, Ballinderry. As is well known, this building has been restored to the condition in which it was in the time of Bishop Jeremy Taylor. All the woodwork of the church is made from oak grown in the woods at Ballinderry. Two interesting fixtures are the standard candle sconces (so arranged that one candle served to light two of the high-backed pews) and the double-decked pulpit for the parson and his clerk.

Moving on to the old church at Portmore, which is built on a rath at the lough side, the ruins of the building, which are fairly extensive, were examined. In the graveyard is a bullaun stone. These stones are somewhat enigmatic to

antiquaries, and being so often found associated with ancient churches may have some religious significance. Two of our members, Mrs. Crozier and Miss L. C. Rea, have been investigating their origin and uses, and at the present time are preparing a paper on bullaun stones for publication shortly in the *Ulster Journal of Archaeology*. After tea in Crumlin there was an interesting walk through Crumlin Glen as far as the waterfall, and on the way home Lyle's Hill was visited.

On June 17th the excursion arranged was to Ballyroney, near Castlewellan. Ballyroney mote and bailey were built by John de Courcy to defend the road to Newry and the south. This was *circa* 1180. As these earth defences were always superseded by stone castles, Seafin Castle replaced Ballyroney mote and bailey in 1252, an interval of over 70 years. After many vicissitudes, this castle was in the possession of Sir Arthur Maguinness in 1641. As he joined O'Neill in the rebellion of that year, his property was confiscated and bestowed on the Trevor family. The infant river Bann flows between the earthen mound and the stone castle.

On our visit to Ballyroney it was found to be almost impossible to reach the top of the mote, crowded as it is with trees and undergrowth.

On the way back a stop was made to examine a "but and ben" house. This style of domestic architecture was introduced at the Plantation and is now fast disappearing. The house in question is in ruins, but sufficient remains to show that the mud-and-wattle technique had been used in part of the building.

An excellent tea at the Road House, Spa, ended an instructive and enjoyable excursion.

R. S. LEPPER,	}	<i>Hon. Secretaries.</i>
J. SKILLEN,		

REPORT OF SURVEY OF ANTIQUITIES COMMITTEE.

Owing to the outbreak of War and shortage of petrol, the Survey of Antiquities has not made as much progress as in former years. However, thanks to the interest and energy shown by Mrs. Crozier and Miss Rea, some new sites have been added to the list.

In the townland of Eglish, Co. Antrim, three new cairns have been found—one round, one single-chambered, and one which may have been a long cairn.

Miss Rea reports another cairn in the neighbourhood of Loughavema, and a second one close by. A detailed report of the former will be published in *The Ulster Journal of Archaeology*.

Dr. Dundee has given a list of nine standing stones in Islandmagee and Francis Crozier discovered a very interesting old inscribed cross in the same district.

Added to these interesting antiquities, various others, including forts, have been reported in different localities. Mrs. Crozier and Miss Rea have carried out important investigations on bullaun stones and their joint article on these interesting relics is awaited with the keenest of interest.

The work of the Survey must of necessity lapse to a certain extent during the present War, but it is hoped to carry it on as far as possible and to take it up fully once more suitable times come again.

M. GAFFIKIN, *Hon. Secretary*.

REPORT OF JUNIOR DIVISION.

The Junior Division has enjoyed yet another successful year, the membership now standing at 135, an increase of 9 on last year's figure. During the year 7 members resigned; 2 Juniors entered the Senior Division, and there were 17 new members.

Good progress has been made with the Junior Division Survey, and provisional maps have already been made of vegetation areas, etc. Whilst botany has mainly been considered this year, a start has also been made on mapping the geological features of the area, and it is intended this season to concentrate on the making of lists of plants, etc., further to augment the maps.

Owing to the War we had reluctantly to discontinue our factory excursions, but the Juniors were invited to attend the Senior Club lectures.

Following numerous requests, the special Junior Division Conversazione was held, as usual, in March and was well supported.

There have been 12 meetings during the year, not counting 4 lectures and 5 Committee meetings. The attendance was good at all excursions.

Meetings and excursions during the year were as follows:—

May 9th.

Tuesday evening Excursion in company with Senior Section to Laganvale Brickworks.

May 20th.

Excursion to Survey area to note trees. Led by Miss K. Maxwell.

June 3rd.

Botanical Ramble with Captain Chase over Holywood Hills to Dundonald, where Captain Chase very kindly provided tea. This excursion was particularly interesting as Juniors present checked occurrence of flowers noted during a similar ramble last year.

July 1st.

Excursion led by Miss Rea, M.Sc., to Carnalea, to study seaweeds.

July 25th.

Evening excursion in company with Senior Geologists, under leadership of Mr. A. H. Davison, to Milewater River, one of the boundaries of our Survey area.

July 29th.

This year the Junior Division was again invited to be responsible for an exhibit of wild flowers in the Municipal Museum for the week commencing July 31st. Accordingly, on Saturday, 29th July, an excursion was made to Scrabo, Newtownards, where a good collection of hillside flowers was made by the botanists, while the geologists worked under Mr. A. H. Davison studying erosion, etc.

August 19th.

Repeat of excursion which proved very popular some years ago to Carrickfergus, where we traced the ancient walls, noting the gateway, old buildings, and lay-out of town; and where we visited St. Nicholas' Church, when we heard a most interesting talk by Canon Rutherford; and so on to the ever-exciting castle, improved since our last visit by the discovery of an additional "secret" stairway.

August 29th.

Evening excursion to Survey area to make lists.

September 2nd.

Archaeological excursion to Drumena, by private bus generously provided by Miss Gaffikin. The route was through Clough, where we left the bus to inspect the Norman mote and bailey; Maghera, where we inspected the church, round tower, etc.; Burnwood, and so on to Drumena.

November 4th.

Excursion to Survey area to make preliminary list of fungi.

Following Dr. Evans's lecture on January 20th, there was a meeting of the Junior Division at the Museum, Stranmillis Road, where Mr. A. George showed us some of the actual objects mentioned in Dr. Evans's talk, and made other points clear by further display of examples of pottery, etc.

March 16th.

Junior Division Special Conversazione. This was very successful, and there was a large attendance. The Friends' School, Lisburn, brought a number of splendid exhibits. Prizes for exhibits were awarded by Mrs. Bolton, Miss Rea and Mr. M'Kissack; and Miss Gaffikin provided prizes for the games which concluded the evening.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1929 } No award.
- 1930 }
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1935. No award.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.
- 1939. No award.

LIST OF EXCHANGING SOCIETIES.

1939-40.

-
- Barrow-in-Furness—Naturalists' F.C. and Lit. and Sc. Association.
 - 1 Belfast—Committee of Public Museums and Art Gallery.
 - 1 Committee of Public Libraries.
 - 1 N.H. and Phil. Society.
 - Presbyterian Historical Society of Ireland.
 - Berlin—Zoologisches Museum der Universität.
 - 1 Birmingham—N.H. and Phil. Society.
 - 1 Bournemouth—Natural Science Society.
 - 1 Brighton and Hove—N.H. and Phil. Society.
 - Bristol—Naturalists' Society.
 - 1 Brüssels—Musée Royal d'Hist. Nat.
 - Buteshire—N.H. Society.
 - 1 Caradoc and Severn Valley—Field Club.
 - 1 Cardiff—Naturalists' Society.
 - 1 Carlisle—Natural History Society.
 - Chester—Society of Nat. Sc., Lit. and Art.
 - 1 Coventry—N.H. and Sc. Society.
 - 1 Down and Connor—Historical Society.
 - 1 Dublin—N.F.C.
 - 1 Royal Irish Academy.
 - 1 Royal Society of Antiquaries, Ireland.
 - Royal Zoological Society of Ireland.
 - Dumfriesshire and Galloway—Natural History and Antiquarian Society.
 - 1 Dundalk—County Louth Archaeological Journal.
 - 1 Eastbourne—N.H., Photographic and Lit. Society.
 - 1 Edinburgh—Geological Society.
 - 1 Essex—Field Club.
 - 1 Eton College—Natural History Society.
 - 1 Frankfort—Senckenbergische Bibliothek.
 - Glasgow—Royal Philosophical Society.
 - 1 Glasgow and Andersonian Natural History and Microscopical Society.
 - 1 Guernsey—La Société Guernésiaise.
 - 1 Halifax, Nova Scotia—Institute of Science.
 - Hertfordshire—N.H. Society and F.C.

1939-40.

- Isle of Man—N.H. and Antiquarian Society.
- Isle of Wight—Natural History Society.
- 1 Leeds—Philosophical and Literary Society.
- 1 Leicester—Lit. and Phil. Society.
- Leyden—Rijks Ethnographisch Museum.
- Liverpool—Geological Society.
- Naturalists' Field Club.
- Llandudno, Colwyn Bay and District—Field Club.
- 1 London—British Association.
- British Museum.
- 1 Geologists' Association.
- 1 Linnean Society.
- 1 Natural History Society.
- Manchester—Geological Association.
- 1 Lit. and Phil. Society.
- Microscopical Society.
- 1 Marlborough College—Natural History Society.
- 1 Mexico—Instituto de Biologia.
- 1 Montevideo, Uruguay—Museo de Hist. Nat.
- Newcastle-upon-Tyne—Natural History Society of
Northumberland, Durham and Newcastle-
upon-Tyne.
- Northern Naturalists' Union.
- 1 University of Durham.
- 1 Norfolk and Norwich—Naturalists' Society.
- 1 North Staffordshire—Field Club.
- 1 Northern Naturalists' Union.
- 1 Oxford—Ashmolean Natural History Society.
- 1 Perthshire—Society of Natural Science.
- Plymouth Institution and Devon and Cornwall N.H.
Society.
- 1 Stavanger—Staats Museum.
- 1 Swansea—Scientific and Field Naturalists' Society.
- 1 Toronto—Royal Canadian Institute.
- 1 Torquay—Natural History Society.
- 1 Wellington, N.Z.—Royal Society of N.Z.

U.S.A.

- Boston, Mass.—Society of Natural History.
- 1 Chicago—Academy of Sciences.
- 1 Field Museum of Natural History.
- John Crerar Library.
- 1 Cincinnati—Lloyd Library.

1939-40.

- 1 Madison, Wis.—Wisconsin Academy of Sciences,
Arts and Letters.
- 1 Milwaukee, Wis.—Public Museum.
- 1 New York, N.Y.—Academy of Science.
- 1 Philadelphia—Academy of Natural Sciences.
- Portland, Maine—Society of Nat. History.
- Rochester, N.Y.—Academy of Science.
- St. Louis, Mo.—Academy of Sciences.
- 1 Missouri Botanical Garden.
- 1 San Diego, Cal.—Society of Natural History.
- 1 San Francisco, Cal.—California Academy of Sciences.
- Staten Island, N.Y.—Institute of Arts and Sciences.
- Tuft's College, Mass.—Eaton Memorial Library.
- 1 Washington—U.S. Geological Survey.
- 1 Government Printing Works.
- 1 National Museum.
- 1 Smithsonian Institution.

REPORT OF THE R. J. WELCH MEMORIAL FUND SUB-COMMITTEE.

From the Account presented herewith, which has been prepared by our Honorary Treasurer and audited by Messrs. John M'Cullough & Sons, Chartered Accountants, it will be seen that a sum of £309 19s. 5d. (made up of Subscriptions £294 2s. 0d. and Savings Bank Interest £15 17s. 5d.) was raised for the purpose of providing a fitting memorial or memorials to the late R. J. Welch, M.Sc., M.R.I.A.

The Sub-Committee has been fortunate in attaining the object for which the Fund was initiated. After payment of expenses, consisting of stationery, printing, postages and receipt stamps, amounting to £16 4s. 9d., the entire balance of the Fund has been devoted to suitable memorials to the deceased.

The Sub-Committee was successful in acquiring the deceased's collections, the purchase price thereof being £250. After adding expenses incidental to the purchase the total cost of the collections amounted to £253 18s. 0d.

With the approval of the General Committee, Miss Rosamond Praeger, M.B.E., M.A., H.R.H.A., was commissioned to execute a bronze portrait plaque of the deceased. This plaque, which cost £25, has been formally presented to and accepted by the Belfast Municipal Museum and Art Gallery.

Also with the approval of the General Committee suitable wording was inscribed on the memorial stone on the deceased's grave in the Belfast City Cemetery, and at the same time the earlier inscriptions on the stone were re-gilded and the entire stonework repaired and renovated, at a total cost of £13 2s. 0d. The additional words inscribed on the memorial stone are:—

ROBERT JOHN WELCH, M.Sc., M.R.I.A.,
an Ardent Student of Nature,
Ex-President, Belfast Naturalists' Field Club,
Died September 28th, 1936,
Aged 77 Years.

After the foregoing payments had been made there remained a balance in hands of £1 14s. 8d., which the Sub-Committee presented to the " Bell-Welch Memorial Fund " as a donation.

The Sub-Committee has offered the deceased's collection of Scientific and Antiquarian Negatives, together with two cabinets containing his collection of Irish Holocene and Recent Land and Freshwater Mollusca, to the Belfast

Municipal Museum and Art Gallery on the following conditions, subject to your approval:—

1. The Mollusca are offered unconditionally.
2. The Negatives are offered subject to the following conditions:—

- (a) That a complete list of the titles be prepared in manuscript immediately and that this be printed in catalogue form as soon as possible, the said catalogue to be available to the public at a nominal price.
- (b) That a complete set of prints be taken from the negatives and made available either in file or album form for reference by the public in the museum.
- (c) That the copyright in the negatives be the property of the Belfast Municipal Museum and Art Gallery.
- (d) That prints required by students or others from the negatives be available at a price per print to be fixed by the Belfast Municipal Museum and Art Gallery authorities.
- (e) That copyright fees be chargeable for prints of any of the negatives required for reproduction at the discretion of the Belfast Municipal Museum and Art Gallery authorities, provided always that when prints are required for strictly scientific purposes, which shall be determined by the Curator, no copyright fee shall be charged.
- (f) That the negatives shall be properly housed.
- (g) That during hostilities, should it be necessary to safeguard the negatives in such a way as to preclude their easy access, conditions (b) and (d) may be held in abeyance.

These conditions have been approved by the Belfast Municipal Museum and Art Gallery and we now submit them to you for your approval.

After approval of these terms by the General Committee of the Belfast Naturalists' Field Club and the execution of a deed conveying the copyright in the negatives to the Belfast Municipal Museum and Art Gallery, it will then be arranged to hand over the collections formally and officially as a permanent memorial to a leading Field Naturalist who was beloved by all.

For the R. J. Welch Sub-Committee.

(Signed) A. H. DAVISON.
J. SKILLEN.
R. G. HENDERSON.
W. R. MEGAW.

Belfast.

9th April, 1940.

ROBERT JOHN WELCH MEMORIAL FUND

Promoted by the Committee of the Belfast Naturalists' Field Club with the object of providing a fitting memorial or memorials to the late Robert John Welch, M. Sc., M.R.I.A., who died on 28th September, 1935.

ACCOUNT OF RECEIPTS AND PAYMENTS FROM THE INCEPTION OF THE FUND UNTIL IT WAS CLOSED ON 24th FEBRUARY, 1940.

RECEIPTS.		PAYMENTS.	
Subscriptions	£294 2 0	Memorials to the Deceased :—	
Interest (Belfast Savings Bank)	15 17 5	Lettering and re-gilding	
		Memorial Stone and renovat-	
		ing Deceased's Grave at Bel-	£13 2 0
		fast City Cemetery	
		Bronze Portrait Plaque of the	
		Deceased, executed by Miss	25 0 0
		S. Rosamond Praeger	
		Purchase of Deceased's Collec-	
		tions of Photographic Nega-	
		tives and of Mollusca ; and	
		Petty Outlays connected with	
		purchase	253 18 0
			£292 0 0
		Stationery, Printing, Postages and Receipt	
		Stamps	16 4 9
		Donation to "Bell-Welch Memorial Fund,"	
		24th February, 1940	1 14 8
			£309 19 5

R. G. HENDERSON,
Honorary Treasurer,
17 Castle Place, Belfast.

We have compared the above Receipts and Payments Account with the books and vouchers kept by the Honorary Treasurer and we certify that it agrees therewith.

49 Donegall Place,
Belfast, 9th April, 1940.

JOHN McCULLOUGH & SONS,
Chartered Accountants.

HONORARY TREASURER'S ACCOUNTS ACCOUNT No. 1. RECEIPTS AND

FOR YEAR ENDED 31st MARCH, 1940. PAYMENTS ON GENERAL ACCOUNT.

75

RECEIPTS.

Subscriptions received :—
405 @ 6/- and 10 @ 3/- £123 0 0
Arrears paid up ... 8 8 0
Paid in advance for 1940/41, etc. ... 5 8 0

Entrance Fees, 17 @ 5/- ... £136 16 0
Excursions Account (without charging printing or postages) ... 4 5 0
Donations towards cost of publication of 2nd edition of *A Flora of the North-East of Ireland* :— 13 13 4

R. S. Lepper, Esq., M.A.,
F.R.Hist.Soc. 5 0 0
Zoological Section ... 1 7 6
Botanical Section ... 1 0 0

Flora Account :—

Proceeds of Sales during year ... 20 19 6
Sundry Donations ... 0 18 0
Club Badges sold ... 0 6 0
Junior Division :—
Subscriptions 3 10 0
Conversazione 2 1 6

5 11 6
£189 16 10

PAYMENTS.

Balance at debit of "General Account"
31st March, 1939 :—

Due to Northern Bank, Ltd. £31 8 8
Less : Cash on hands ... 0 19 2

£30 9 6
£51 18 0
29 2 7

Printing and Stationery ...
Postages ...
Incidentals, Secretary's Telephone Rental, Clerical Assistance and Petty Expenses ... 11 9 10

Hire of Lecture Hall and Committee Room ... 92 10 5
Lanternist's Fees ... 10 7 0
Lantern Slides ... 4 0 0
A.N.J. Affiliation Fee for 1940 ... 4 2 0
Subscription, The National Trust ... 3 0 0
Flora Account :— 0 10 0

London Storage Charges, Insurance, Postages, etc. ... 4 5 3
Costs of printing, publishing and distributing *Proceedings* of the Club for the year 1938/39 24 15 9
Junior Division Expenses ... 11 19 11

£185 19 10

Balance at credit of "General Account" at
31st March, 1940, viz :—

With Northern Bank, Ltd. ... 3 17 0
£189 16 10

Audited and found correct.

R. G. HENDERSON, Hon. Treasurer.

6th April, 1940.

A. M. McKISACK, }
W. P. CHANDLER, } Auditors.

17th April, 1940.

ACCOUNT No. 2. RECEIPTS AND PAYMENTS ON ACCOUNT OF THE "ROBERT JOHN WELCH MEMORIAL FUND."

RECEIPTS.		PAYMENTS.	
Balance at credit of Fund at 31st March, 1939, viz:—		Monumental Mason's Account for lettering and re-gilding and for cleaning and renovating stonework, etc., of Deceased's Grave at Belfast City Cemetery	
With Belfast Savings Bank ...	£259 0 6	Purchase Price of the Deceased's Collections of Photographic Negatives and of Mollusca ...	£13 2 0
With Northern Bank, Limited, in the Club's No. 2 Current Account	2 17 3	Cash Outlays in connection with the acquisition of the Deceased's Collections	250 0 0
Interest credited by Belfast Savings Bank for year to 20th November, 1939, and up to date when account was closed on 18th December, 1939	£261 17 9	Unexpended balance of the Fund, which the Subcommittee paid into the account of the "Bell-Welch Memorial Fund" on 24th February, 1940	3 18 0
			1 14 8
	<u>£268 14 8</u>		<u>£268 14 8</u>

R. G. HENDERSON, Hon. Treasurer.
6th April, 1940.

Audited and found correct.

A. M. McKISACK, } Auditors
W. P. CHANDLER, }
17th April, 1940.

ACCOUNT No. 3. RECEIPTS AND PAYMENTS ON ACCOUNT OF "BELL-WELCH MEMORIAL FUND."

RECEIPTS.		PAYMENTS (None).	
	Interest. Principal.		Interest. Principal.
Balance at credit of Fund at 31st March, 1939 (£100 13s. 6d.)	£6 13 6	Balance at credit of Fund at 31st March, 1940, viz:—	
Interest credited by Belfast Savings Bank for year to 20th November, 1939	2 10 0	£104 18s. 2d. on deposit with Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Bell-Welch Memorial"	£3 3 6
Amount received, 24th February, 1940, from "R. J. Welch Memorial Fund" Committee	1 14 8		£101 14 8
	£3 3 6		£3 3 6
	£101 14 8		£101 14 8

77

R. G. HENDERSON, Hon. Treasurer.

6th April, 1940.

Audited and found correct.

A. M. McKISACK, }
W. P. CHANDLER, } Auditors.

17th April, 1940.



PROCEEDINGS AND ANNUAL REPORTS



SERIES II.
VOL. X.

PARTS
3, 4, 5, 6, 7, 8.
1940—1941.
1941—1942.
1942—1943.
1943—1944.
1944—1945.
1945—1946.

PRINTED FOR MEMEBERS ONLY.
PRICE OF EXTRA COPIES TO MEMBERS 1/-.

EDITOR :
A. M. CLELAND.

NOTE.

All Proceedings and Reports for the years 1940/1941 to 1945/1946, inclusive, have necessarily been very much condensed owing to conditions imposed by the late War.

Now that Peace is restored it is hoped that future Proceedings will be more interesting and detailed.

A. M'I. C.

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1941.
(SEVENTY-EIGHTH YEAR)

SERIES II.
VOLUME X.



PART III.
1940-1941.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-EIGHTH YEAR, 1940-1941.

GENERAL COMMITTEE.

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B.A., M.R.I.A.

Retire 1943.

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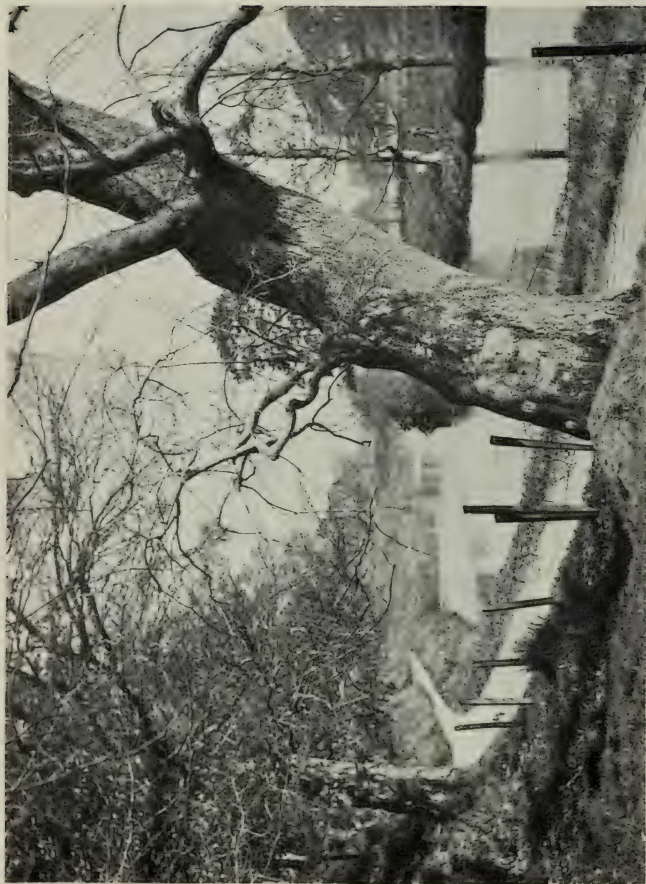
JOSEPH SKILLEN,

W. GRAHAM R. SKILLEN.

} 25 Stranmillis Gardens,







The Lagan, near Edenderry.

[Photo by A.M.T.C.]

PROCEEDINGS.

SUMMER SESSION.

The following Excursions were made during the Session, but owing to restrictions imposed by the War no reports are appended.

30th April	...	Black Mountain.
14th May	...	Lagan Canal.
24th—26th May	...	Londonderry and District.
1st June	...	Derryadd.
8th June	...	Newtownhamilton.
11th June	...	Newtownards.
22nd June	...	Larne.
12th—15th July	...	Cavan and District.
20th July	...	Ardglass.
27th July	...	Ballymena and District.
10th August	...	Rostrevor.
20th August	...	Carrickfergus.
24th August	...	Portstewart.
6th—8th September	...	Ballycastle.

WINTER SESSION.

The authors of the various papers, of which abstracts are given, are alone responsible for the views expressed therein.

SOCIAL MEETING.

Owing to War conditions the usual form of *Conversazione* was abandoned, a Social Meeting being arranged instead, to be held in the Museum Buildings, College Square North, on Saturday, 19th October, 1945, beginning at 2.30 p.m.

This meeting was organised entirely by the Junior Division under the supervision of its energetic Secretary, Miss F. Bolton, and there was a very gratifying attendance of members, the rooms being crowded throughout the afternoon. The Junior Division supplied the exhibits, and a most extensive and instructive display covered the tables.

When afternoon tea had been taken by all present, the President (Mr. A. H. Davison), welcomed the members and friends (the latter including three from Dublin and one from far away Calcutta), and congratulated the Juniors on their splendid work in collecting and displaying the exhibits.

[**Note**—The programme of lectures for the Winter Session of 1940-41 was a combined programme of the Belfast Natural History and Philosophical Society and the Belfast Naturalists' Field Club.]

IRELAND, PAST AND PRESENT.

This lecture, arranged by the Committee of the B.H.N. and P.S., was given by Mr. T. H. Mason, M.R.I.A., before a crowded and appreciative audience. It was delivered on 16th November in a very attractive manner, contained much of a humorous character, and was illustrated by a series of splendidly artistic lantern views.

GEOLOGY AND THE EVOLUTION OF PLANTS.

The second meeting was held on 30th November, the President of the Natural History and Philosophical Society (Dr. Alworthy), in the chair, when the President of the Belfast Naturalists' Field Club (Mr. A. H. Davison, F.R.S.A.I.), gave his Inaugural Address, his subject being as above.

In the course of his remarks the President said:—

The study of fossil plants is a very modern development, for notwithstanding the great abundance of fossil plants in the countries of the classical world, the limestone quarries of the Greeks, the petrified forests of Nubia, and the vast public works of ancient Rome, none of the writers of antiquity mention fossil plants, although some of them carried on a lively discussion regarding the nature of animal fossils. Petrified wood is not recorded until about the middle of the thirteenth century.

The earlier commentators explained fossils as due to the mystical action of the stars or the mysterious working of spiritual forces. Nothing was further from the accepted thought than that fossils were the remains of real organisms that once had lived. The nearest approach to such a view was that they were some of the models used by the Creator, or that they had developed from abortive germs of animals and plants that had become lost in the earth.

Then at last fossils were looked upon as the remains of organisms that were regarded as evidence of the Flood of Noah, an interpretation suggested by Martin Luther in 1539.

This Flood theory or diluvial hypothesis found numerous advocates throughout the seventeenth and even far into the eighteenth century. Fossil plants then excited interest, chiefly as supposed evidence in the controversy as to whether the Flood took place in May or August.

James Parsons figures numerous fossil fruits from the early Eocene deposit of Sheppey in the Thames estuary. These he thought would furnish evidence of the season of the year in which Noah and the rest of creation were obliged

to take refuge in the Ark, and he concludes from the maturity of these fossil fruits that the deluge commenced in the fall of the year and not in the Spring as his contemporary, Dr. Woodward, had supposed.

One Swiss exponent published a *Herbarium Diluvianum* at Zurich in 1709, and even figured the bones of one of Noah's less fortunate brethren which he found among fossil leaves at Oeningen on the Swiss border of Baden, and which subsequently proved to be the bones of a large Miocene amphibian.

The Flood theory passed through various phases of opinion. At first the fossil plants were regarded as similar to those still growing in the vicinity, a natural enough belief when the universal acceptance of the Mosaic cosmology and a world but 6,000 years old is borne in mind. When the differences in the fossils became apparent they were thought to represent forms still existing in the tropics that had been swept to Europe and buried by the waters of the Flood.

When the progress of knowledge of tropical plants made this view untenable it was thought that the fossils represented plants exterminated by the Flood, and from this it was but a slight step to the opinion advocated by many that the antediluvian vegetation was of a far higher order than that of the present, with none of the thistles or other weeds of modern times, and that our modern forest trees are the degenerated descendants of delightful Adamitic fruit trees, a phytological fall paralleling and ascribed to the Fall of Man.

Geologists have found animals, rocks, and minerals more useful than plants in reconstructing the history of the past, and in correlating strata all over the world, and even in estimating climates. Most of the main stratigraphical divisions have been based on marine fauna.

Marine flora is generally so soft and has so little skeleton that few remains are ever found. Most of our strata were laid down in water, and the breaks between represent periods when the sea floor was raised to form dry land. Such periods are periods of erosion, denudation, and destruction, yet most of the plants preserved are dry-land plants, and further, it is mostly plants with woody stems or leathery leaves that have been preserved.

In exceptional circumstances soft plants and soft parts have been marvellously preserved by petrification, or being caught in amber, but their percentage is small.

A curious result of this is that plants living at the close of a geological age are often clearly separated from those

living at its beginning, and for the same reason plants from the upper beds of one age are often nearly related to those from the lower beds of the succeeding age.

Reckoning the whole of geologic time as 100 per cent. it has been estimated that the Archean period represented 30 per cent. and the Proterozoic 25 per cent. of the total length of time. These terms are unfortunate because they imply more knowledge than we have got. There are, of course, no sharp boundaries any more than there is between youth and age.

In the Archean no recognisable trace of life has been found, and this was probably an age of unicellular life. In the Proterozoic only algae and bacteria are known to have existed. These two periods together form 55 per cent. or more than half of geologic time.

During Cambrian, Ordovician, and Silurian times only seaweeds are known with certainty to have lived, although animal life at this time was wonderfully developed and varied. The abundance of animal life argues for an abundance of plant life which must have been their food supply, either directly or indirectly. Both animals and plants were confined to the water. Air-breathing animals (Scorpions) appeared in the Upper Silurian, but no acceptable evidence for land plants has yet been produced for this time.

All the periods so far mentioned make up 70 per cent. of geologic time, but not a trace of land plants is yet known.

The Devonian period is the time when the first land plants appear, and it is believed they came into existence in the early Devonian. One form, *Psilophyton*, occurs in the Middle and Lower Devonian. It appeared as a mat of creeping stems which arose to about a height of two feet and with woody stems about half-inch thick. Other primitive plants from Lower and Middle Devonian have been found. One interesting form is *Rhynie* from the *Rhynie* chert beds of Aberdeenshire which here represent an ancient, silicified peat bed, and there are only two species. A third form, *Asteroxylon*, bore a resemblance to the living clubmoss *Lycopodium*. These three types are called "The *Psilophyton* flora," and may have given rise to the ferns and club-moss with which they show some relationship. Notice that they were rootless and leafless with underground stems. Hairs apparently serving the purpose of roots. Notice the spirally curved ends to the branches of *Psilophyton*, and if these had leaflets would look extremely like ferns. They also have

stomato or breathing pores and therefore were not submerged. Traces of spores have also been found.

There is evidence of ferns and fernlike types in early Devonian, but in Upper Devonian a flora of fern, club-moss, and seed-fern appears. There are also Arthrophyte (Horse-tail) types such as *Archeocalamites*. The ferns include *Archeopteris*, a tree-fern type which is common in the Kiltorcan Beds of Co. Kilkenny. It is in the Upper Devonian that fronds of modern type with well developed web-like green leaflets with veins come into prominence and set a fashion in construction which has persisted ever since.

The Carboniferous period shows one of the most wonderful and luxuriant floras, although not so varied as later times, and we know more about the structures than of any other times except the present. To this period belongs the giant club-moss, *Lepidodendrons*; and the *Sigillarias* and the great horse tail (*Calamites*). These resembled in their appearance and structure the small and insignificant Club-moss of our hills and the Horsetails so familiar to all of us, but in these times they were giant trees massed together into huge forests in the shade of which grew innumerable plants with fern-like foliage.

Among living plants one can trace the evolution from primitive aquatic algae through primitive land plants like liverworts and mosses to ferns, horsetails and club-mosses. Then modern botanists find a huge gap between these spore-producing plants and the seed-producing plants, which it is impossible to bridge by any known living plants. Palaeobotanists have, however, been able to find the missing links among the fossil plants preserved in the rocks.

In some of the *Lepidodendra* which somewhat resemble our *Lycopods* or Club-mosses it was found that the number of megaspores in each case was reduced to one which germinated in situ on the tree, i.e., producing the prothallus while still in the Sporangium. Then a plant with a perfectly fern-like frond called *Lyginopteris* was found with the fructification invested by a curious cup or cupule though the anatomy reminds one of the lowest group of recent seed-bearing plants—the *Cyads*. The name *Pteridosperms* or seed-ferns has been given to this group.

Dr. Marie C. Stopes in her book on "Ancient Plants," makes the relationship between the spore-plants and seed-plants very clear in a short series of diagrams. It will be seen from these diagrams how difficult it would have been to bridge the gaps in the evolution of the seed plants if we had

not had the fossil seeds and spores represented in the third, fourth, and fifth diagrams.

During Carboniferous times we find seed-ferns of herbaceous, climbing, and tree forms as well as true ferns mostly of tree type. Gymnosperms of Coniferophyte types occur such as *Cordaites*.

All these had a world-wide distribution suggesting uniform climatic conditions. The perfection of the trunks in the Carboniferous forests indicates an absence of parasitic and epiphytic forms of life which crowd the tree trunks of our present warm forests.

Profound changes came during the next and last period of Palaeozoic time, the Permian. In the Southern hemisphere there were several areas of glaciation, with the result that the Carboniferous flora was almost entirely blotted out in the Southern hemisphere, and became gradually replaced by a flora of coarse fern-like plants known as the *Glossopteris* or *Gangamopteris* flora from two of the most abundant types.

Within 300 miles of the South Pole the members of Captain Scott's expedition had collected examples of *Glossopteris indica* and other plants and these were found at the famous final camp with their bodies.

The Carboniferous flora continued little changed in the Northern Hemisphere, but before the close of the Palaeozoic period with the drying up of the swamps and the climatic changes, conditions were not so ideal. Certain types, such as the Seed-ferns, *Lepidodendrons*, *Sigillarias*, and *Calamites* did not live beyond the Palaeozoic. *Cordaites* almost disappeared, but managed to survive almost to the end of the Triassic.

The only representative of the Arthrophyte (*Calamite*) family that has survived is the single genus *Equisetum*.

The next great Era in the history of life is called the Mesozoic. The characteristic flora of this Era was fully established during the early part of the Triassic Epoch, and remained remarkably uniform up to Early Cretaceous times. Ferns were numerous and a few Club-mosses and Horsetails have been found, but the greater and more prominent part of the Land vegetation was Gymnospermous. These belonged to three main groups; conifers, ginkgoales, and cycads. Though important in themselves, the conifers and ginkgoales have little bearing on the evolution of flowering plants.

Conifers were well represented, and remains have been found of all the living families *Araucarias* (Monkey Puzzles), *Sequoias*, *Pines*, *Cypresses*, *Yews*, etc. Not so different

from the present day representatives and nothing to suggest relationship with the higher flowering plants.

Ginkgo biloba is now a perfectly isolated species without relations in the living flora. It is the last survivor of an ancient family which flourished and had a wide distribution in Secondary times, and may even be traced to Primary rocks. The *Ginkgos* have much in common with the *Cycads*.

The *Cycads* are a definite link between the ferns and the flowering plants.

The *Cycads* were so numerous and so characteristic, and had such a world-wide distribution, especially in Jurassic times, that the Mesozoic has been called the age of *Cycado-phytes* or *Gymnosperms*.

The *Cycads* are still represented by nine genera and about 100 species. In the Mesozoic Flora two out of every five plants were *Cycads*, and they had a wide distribution from the Tropics to the Arctic. They agree with the seed-ferns in having a pollen chamber and motile spermatozoids, and in this character they have affinities with *Ginkgo* as well as with ferns.

In the Lias at Larné large chunks of some coniferous wood is frequently unearthed almost like the jet of Whitby. It can be identified as coniferous in thin sections.

The Cretaceous has hitherto been taken to mark the appearance of the flowering plants or *Angiosperms*.

The apparent rapidity with which the flowering plants developed and overspread the world towards the end of the Cretaceous period was described by Darwin as an abominable mystery, and the problems concerning their ancestry are still unsolved. One point worthy of notice is that insects became abundant about the same time, and the mutual adaptation of pollinating insects and honey-bearing flowers was undoubtedly an important factor in their success.

Bees and Wasps (*Hymenoptera*) do not appear before the Upper Oolite (Jurassic). The early Butterflies and Moths (*Lepidoptera*) about the same age, i.e., both a little before the flowering plants.

The insects of Carboniferous times were chiefly Cockroaches and Dragonflies, one species of which was fourteen inches long and had a wing spread of two feet.

Darwin postulated a Southern continent on which they may have evolved. This Southern continent certainly existed in the late Palaeozoic and early Mesozoic times, but so far it has produced no clear evidence bearing on the question.

The Polar regions have been suggested, but the teeming tropics on general grounds seem more likely to have cradled a new race. At present, however, we know less of the tropical fossil forms than of those of the Arctic, and we must wait for more evidence. Some of the oldest known fossil leaves and fruits are from early Cretaceous beds in Greenland at least 300 miles north of the Arctic Circle.

That was before our Antrim Chalk was upraised from the sea floor, and before these plants had migrated to Antrim and Mull, and the Southern part of the Thulean continent where we find them in the interbasaltic beds.

These first Angiosperms, most of which can be referred to living families, and some even to living genera, were so characteristic and modern in appearance that they must have had their origin further back in geological times.

In 1938 it was disclosed by Dr. J. B. Simpson at the B.A. Meeting at Cambridge, that pollen of two dicotyledonous families were got from the Jurassic coal Kimmeridge of Sutherland, viz., Magnoliaceae and Nymphaeaceae. In the Lower Cretaceous the following families are represented, Willow, Birch, Elm, Mulberry or Fig, Laurel, Grape, and Water Lilies.

By Upper Cretaceous times Angiosperms had spread over the earth and became the dominant group of plants. Many new and modern types had come in, such as sassafras, tulip tree, walnuts, persimmons, maples, oaks, beeches, dogwoods, planes, hollies, ivies, sycamores, eucalyptus, etc. Some floras were made up entirely of flowering plants, but there were also in places mixed floras of hardwoods and conifers such as sequoias, junipers, cypresses, pines, ginkgos, etc. A certain number of Monocotyledons are also found. Palms quite conclusive for leaves, fruits and stems with structure preserved have been found. The oldest fossil palm — a cocoa-nut — from the Cretaceous of France equivalent to our Upper Greensand. The Palm is thus one of the oldest known Angiosperms, though there are plenty of dicotyledons of the same age. A fossil lily was found in Japan in the Upper Cretaceous in which Angiosperms and Gymnosperms are found in nearly equal numbers.

The Angiosperms undoubtedly show the most frequent adjustment of the plant organism to a strictly terrestrial existence. Adaptable to a degree unequalled in other phyla they inhabit the most diversified environments, and some have secondarily invaded the sea margins as well as lakes and streams, while others have become parasites, saprophytes, or epiphytes. The modification of their flowers for

securing cross-pollination through the agencies of insects and birds is well known, as are the various modifications of fruits and seeds for dispersal by wind, mechanical ejection, floating, passing unharmed through the alimentary tract of birds and mammals, sticking or clinging to fur, feathers, etc. Ranging in size from tiny aquatics to giant trees several hundred feet tall and ranging in their life span from that of a single season to several thousand years, they are the most impressive members of the vegetable kingdom.

It seems more than a coincidence that the evolution of a group of plants of the capacity of Angiosperms, in which, as in some cereals, 30 per cent. of the total weight of the plant is stored as elaborated food in the seeds, should have been contemporaneous with the evolution of warm-blooded mammals. At any rate, it seems certain that human civilization could not have evolved but for the evolution of this plant phylum.

The Cainozoic, including the Tertiary and Quarternary, was the time of modern life.

Eocene times show rich floras, and those of the inter-basaltic of Antrim and Mull are well known.

Mr. J. Starkie Gardner in two important papers given to this Club in 1883 and 4, states that the Flora at the base of the Eocene implied a climate as temperate as we now enjoy. There was an increase in heat towards the middle of the Eocene when the temperature of the London area became tropical. In referring to the inter-basaltic flora of the Island of Mull and to the rich assemblage of plants obtained within 100 feet of the base of the basalts on Ardtun Head, he states that these resemble those of Sésame believed to be the oldest Eocene beds in France. Next in age he places those of Glenarm and Ballypallady with a group of nettles known as *Macclintockia*, which resemble those from the oldest Eocene of England in the Isle of Thanet. The Lough Neagh plants, he states, are newer than those of Glenarm, but that it is not possible to determine their age definitely. They may perhaps be Oligocene.

The Ginkgo, which occurs in the Mull beds, was at that time widely distributed from Canada to Greenland and Spitzbergen, North America, Europe, and Asia. The last and only habitat now existing is in China, where it is even doubted if it is anywhere natural. This living fossil may only have been preserved on account of its being regarded as sacred by the Chinese.

In Pliocene times there was a lowering of temperature and comparatively few species are known from this time.

During the Pleistocene or Great Ice Age, plants were forced to migrate southward. Some did this successfully, others were overwhelmed. The Sequoias are believed to have been caught between the Ice and the Mountains, or the Sea in Europe and overwhelmed, while in America they could pass southward over land and migrate north again when conditions ameliorated. Still others were stranded on Southern mountain tops, and from this flora has developed the plant life existing to-day.

It has been estimated that 90 per cent. of the plants now living in the area covered by the ice were in existence throughout all of Pleistocene times.

It is interesting to notice that the forest trees which grew in the second interglacial period were remarkably like those we know to-day. It is a proof that Europe was enjoying a mild, pleasant climate, a little warmer than we have now, and it was a time at which the first creature we can call man put in an appearance in Europe. Men began to make things with their hands at a time when the land was full of firs, maples, beeches, oaks, even vines, clematis, and fig trees, and we may date that age from anything above half-a-million to a million years ago.

I do not intend to deal with the Palaeobotany of the Quarternary which was so recently and ably explained to the Club by Miss Kertland. The method is briefly from the pollen of plants still living and whose habits are known to compare and plot from the fossil pollen what plants have invaded or migrated from a particular area and the order of such succession. This gives a key to climatic changes which can be co-related with other factors such as archaeological finds.

The method of pollen analysis is now being used not only to tell us the succession of the climates and forests of the last few thousands of years, but as Dr. J. B. Simpson has shown, can be applied to the older rocks such as the Jurassic and Interbasaltic.

There was a very large attendance, the audience showing great interest in the subject, which was illustrated by a fine range of views, in addition to an excellent series of geological and botanical objects.

WATER-BOATMEN AND THEIR RELATIVES.

The third meeting of the Winter Session was held on 14th December, the President of the Belfast Naturalists' Field Club (A. H. Davison, F.R.S.A.I.), in the Chair, when

Emeritus Professor Gregg Wilson, O.B.E., M.A., D.Sc., M.R.I.A., lectured on the above subject.

In the course of his remarks the Professor introduced the Order *Hemiptera* as a group of great importance to mankind, but one that had been far from popular with naturalists. He discussed the principal character by which the members of this Order may be recognised as belonging to it, and gave an account of the structure and functioning of the unique proboscis which they possess. Passing to the Water *Hemiptera*, he showed how the above-water forms are distinguished from the underwater types. Three examples of each of these sub-divisions were considered.

Hydrometra, the "Water Measurer," was regarded as an essentially out-of-water insect, not entering the water at all, but liable to be drowned if accidentally immersed. It is an insect that breathes and breeds very much like other insects; but it spends its life on the surface of ponds, where it can find comparative safety from attack, and a supply of food readily accessible. It can easily be recognised by its slender body and legs, and especially by its very long head, with prominent proboscis.

Gerris, the "Pond Skater," and *Velia*, the "Water Cricket," were shown to be also adapted for moving and feeding on the surface of ponds or streams; but they were described as more tolerant of immersion.

The under-water *Hemiptera* were shown to have special modifications, such as: (1) Great reduction of antennae; (2) development of swimming apparatus; and (3) breathing devices that enable the insects either to carry air with them under water, or to derive air from above water by means of respiratory tubes. It was emphasised that the *Hemiptera* have not acquired tracheal gills for water respiration like those that are found in may-fly and dragon-fly larvae. Three types of under-water *Hemiptera* which were considered were: (1) *Notonecta*, the "Water Boatman" proper, which normally swims on its back; (2) *Corixa*, which, with its near relatives of the genus *Sigara*, has remarkable devices for producing a chirping noise, and is also noteworthy for its slight proboscis; and (3) *Nepa*, the "Water Scorpion." This last type has remarkable prehensile fore-legs and a long posterior respiratory tube; and it is sluggish in habit, not having developed special swimming legs, but rather resembling *Hydrometra* in its walking habit.

The lecturer concluded by calling attention to the fact that there is still room for workers at this interesting group.

The Professor had a large audience, spoke in his well known vigorous style, and illustrated his subject by a fine series of lantern views, supplemented by an excellent range of well displayed objects, dead and alive.

EXPLAINING THE MILKY WAY.

This lecture was arranged by the Committee and the B.N.H. and Ph.S., and was given by Dr. E. M. Lindsay, M.Sc., A.M., Ph.D., M.R.I.A., (Director of Armagh Observatory). It was delivered on 18th January before a large audience, whose presence was a distinct compliment to Dr. Lindsay, as a dreadful blizzard began early in the afternoon and continued all evening. The lecture was most interesting and was splendidly illustrated by a series of excellent lantern views.

FOSSILS AND EVOLUTION.

The fifth meeting of the Winter Session was held on 2nd February, the President of the Belfast Naturalists' Field Club (A. H. Davison, F.R.S.A.I.), in the Chair, when Prof. J. Kaye Charlesworth, D.Sc., F.G.S., M.R.I.A., lectured on the above subject.

In the course of his remarks Dr. Charlesworth traced, in a most interesting manner, the gradual development of animal life from its first humble beginnings to the present day, illustrating what he said by a series of very carefully selected and typical lantern views. He did not fail to point out that among the hosts of various classes of animals that have sprung into existence in the past, developed to maturity and then became extinct, some at least have survived. In this connection he pointed to the humble little Mollusc *Lingulella*, which, first met in the most ancient Cambrian rocks, still survives in the present year of grace in a very slightly modified form.

At the commencement of his lecture Dr. Charlesworth stated that he proposed only to deal with acknowledged facts, but at the close of his discourse he added a few remarks on various theories connected with the evolution of animal life. As to these, he warned his listeners to be very careful of their footsteps when walking on the swampy ground of theory and not allow themselves to be too easily tempted to leave the more solid and safer ground of fact. The gulf between the Finite and the Infinite is so vast that it is almost impossible to believe that human intelligence can ever cross it.

HISTORY—MOVEMENTS OF MEN.

This lecture was arranged by the Committee of the B.N.H. and Ph.S., and was given by the Vice-Chancellor (Dr. Lindsay Keir, M.A.), Queen's University. It was delivered on 16th February before a very appreciative audience, and proved to be a most interesting and thought promoting discourse.

The Chair was occupied by the President (Dr. Allworthy), of the B.N.H. and Ph.S., who in his introductory remarks referred to the long connection that had existed between the Society and Queen's University.

PLANTS OF THE SEASHORE.

The seventh meeting of the Winter Session was held on 2nd March, the President of the Belfast Naturalists' Field Club (A. H. Davison, F.R.S.A.I.), in the Chair, when Miss W. J. Sayers, B.A., lectured on the above subject.

In the course of her remarks the lecturer said that:—Owing to the fact that our botanical district comprises three maritime counties with a very varied coastline, we have an excellent opportunity of studying not only *salt marsh* plants, where the dominant feature is salt, as in the Comber Estuary; *sand-dune* plants, where the dominant character is sand, as for instance at Dundrum and Newcastle; but also plants of the *foreshore*, *shingle* and *spray-washed cliffs* and rocks. We may also study the zonation of the salt marsh flora, from the *zostera* or grasswrack which is permanently immersed, through the *salicornetum*, where the pioneer is glass-wort (*Salicornia Europaea*), followed by such plants as *Suaeda maritima* (Sea blite), *Salsola kali* (Prickly Saltwort), *Aster tripolium* (Sea Aster or Starwort), *Plantago maritima*, (Sea Plantain), *Statice Limonium* (Sea Lavender), *Armeria maritima* (Thrift or Sea Pink), and *Triglochin maritimum* (Sea arrow-grass), not to mention the grasses which play such an important part in barring and holding the onward rush of sand and mud carried shorewards by the tides and winds.

Among the notable features of the plants nearer the sea are the succulence caused by water storage tissue, dwarfed size, small leaves, greyish green colour, thorns, hairs and other devices for conserving the supplies of fresh water. In the characteristic sand dune flora on the other hand, we find elaborate arrangements for enabling the plant to gain a firm hold in the sand, and a system of stems and roots which reach a supply of the necessary water.

The *Psamma* grass (*Ammophila* or *Psamma arenaria*) is here the pioneer, and is especially interesting because of its

device for rolling up its leaves in dry weather in order to cover its stomata, and so prevent undue loss of water by transpiration. The part played here by *Salix repens* (Dwarf Willow) is also worthy of notice for its ramification of creeping stems prepares the way for the entrance of many less hardy and vigorous plants.

The Lecture was illustrated by an excellent series of lantern views, and the meeting terminated after a keen discussion and a hearty vote of thanks to Miss Sayers for a most interesting afternoon.

SEASONAL NOMADISM IN MODERN EUROPE AND ANCIENT IRELAND.

The eighth and concluding meeting of the Winter Session was held on 16th March, the President of the Belfast Naturalists' Field Club (A. H. Davison, F.R.S.A.I.), in the Chair, when Dr. E. Estyn Evans, M.A., D.Sc., F.S.A., lectured on the above subject.

In his opening remarks the lecturer explained that his subject might be comprehensively expressed as "Transhumance in Europe." Continuing, he said the term *transhumance* is difficult to define and has found its way into few dictionaries. The word was popularised by French writers—the first reference is 1829—and seems to have been borrowed from Spain. The derivation is *trans* (across) and *humus* (ground). Dr. Newbigin describes it as "the periodic and alternating displacement of flocks and herds between two regions of different climate," but it is necessary to expand this definition in order to distinguish clearly between transhumance and nomadism, which, though they grade one into the other, differ widely in their cultural settings and social implications. The movements of flocks and herds under transhumance are seasonal and altitudinal: they take place to and from an established settlement which is regarded as the permanent home. This settlement is never entirely abandoned, and the migrant element comprises only those members of the group who are concerned with livestock. The migrants, also, often move to a definite place which they may occupy for the whole period of their absence from home and which they sometimes use year after year. Part of the population, usually the greater part, is occupied with cultivation and sometimes other work such as fishing. The term nomadism would be properly used where there is no permanent "home," and the whole group is constantly on the move. Under nomadic conditions, 'cultivation, if carried on at all, is on a small scale,' and grain is often

obtained by bartering stock products with settled cultivators. The fact that there are many intermediate types of seasonal nomadism (for example, that illustrated by the Kirghiz of the Tian Shan, who spend the winter in large lowland camps, where a section of the population remains to grow crops in summer) does not invalidate the distinction that should be drawn between the two forms.

Though the practice of transhumance has nearly everywhere declined with the establishment of modern conditions in Europe, it is still an important social and economic fact in some areas, while in many others it has made an enduring contribution to the pattern of regional culture. Except where, as in Spain, this seasonal nomadism has been sufficiently powerful to affect the political organisation, or where, as in Switzerland, it has maintained an established place in local economy, the custom of transhumance has escaped serious notice by English writers. Like so much in the life of rural communities, it has tended to pass away unrecorded, leaving only modified survivals or old memories from which its details must be reconstructed.

Transhumance is generally admitted to be of ancient origin, but it is erroneous to assume, as some writers have done, that it represents a relic of former complete nomadism. Indeed, evidence is accumulating to show that pastoral nomadism, as practised, for example, on the Asiatic steppes, is a secondary growth; and the old *a priori* arguments of cultural evolution from hunting and gathering through a pastoral to an agricultural stage are no longer accepted. Although in times of stress or invasion the element of nomadism in transhumance must have been strengthened in some regions, and mountain herders may have temporarily lost their annual contacts with the lowland communities, in origin transhumance should be regarded as a device evolved by settled agriculturists in adaptation to certain either semi-arid or mountainous environments.

If we turn to S. Europe and S.W. Asia, whence so many basic features of European civilisation are derived and where transhumance still plays an important role, we find, in lands of Mediterranean climate, certain clearly defined conditions which make the seasonal movement of flocks and herds readily intelligible. In the drought of summer the lowlands soon wither and the landscape becomes brown and arid, but the higher pastures, fed by melting snows and early summer rain, offer good grazing: "High up the mountain green grows the grass." Already in Neolithic times, 6,000 years ago, nearly all the food-producing settlements

examined by archaeologists in S.W. Asia and adjacent lands show an economy of mixed farming, with cattle, sheep, goats, and pigs. Flocks of sheep and goats would be accompanied up-hill by men and boys to milk the animals and to ward off wild beasts. From such beginnings transhumant practices have crystallized out in various forms in different environments: they have spread throughout the Alpine fold belt of S. Asia, N.W. Africa, and S. Europe, and extended, long ago, northwards along the Atlantic fringe to Britain and Scandinavia. In these extensions into humid climates cattle have played a much greater part than sheep and goats, and the forms and social consequences of transhumance are, therefore, different. Sheep, for instance, can cover long distances afoot, whereas cattle rearing has never given rise to long migrations, and the pig is even more restricted in its movements, though pig transhumance is a special feature of Bosnian pastoral life.

The remarkable survival of the Latin element in the Roumanian tongue may be attributed in part to the practice of transhumance. Contacts maintained between summering groups over a fairly continuous pastoral zone have not only kept dialectal variation within limits, but have helped the Roumanian people to preserve a sense of unity and regional consciousness even when the lowlands were overrun by invaders.

In Spain and Italy the evils of transhumance have long been more apparent than its benefits. The Abruzzi is still its chief centre in peninsular Italy as it was in Roman times, the complementary winter pastures being the Campagna Romana and Apulia. Movement is here, as in the Balkans, "inverse," but it is true transhumance; unlike the Balkan Vlachs, the Abruzzi shepherds are not accompanied by their families. They are rather wild, ill-favoured, and retentive of old ways. The herdsman of the Campagna, for instance, within sight of Rome, still build round wooden huts of primitive design and live "in much the same way as their forefathers did before the foundation of the city." But land reclamation has now greatly reduced the winter pastures of the transhumants. Few now visit the Tuscan Maremma, whose flocks contributed to the wealth of Florentine merchants. Further north, transhumant practices, now maintained generally by professional herdsmen, are found all round the edges of the Basin of Lombardy, but the irrigated water-meadows favour intensive cattle rearing at the expense of transhumant shepherding.

Even in Spain, long the stronghold of seasonal nomadism, only a proportion of the sheep are moved nowadays, but it is estimated that nearly three million head were involved in the 15th century. In the 14th century the sheep-farmers formed a powerful association known as the Mesta—a name taken from the periodic assemblies of the owners. The Mesta came to dominate the Cortes, which took every precaution to stop “the encroachment of tillage” in the interests of the transhumants. Wide strips of unenclosed country, called *cañadas*, linking up summer and winter pastures, were reserved for the passage of the flocks over the Meseta, which gets rain and grass in spring and autumn, but is barren in winter and summer alike. The winter feeding grounds, especially those of Andalusia, were far removed from the summer pastures of the Cantabrians and Teruel; consequently the shepherds travelled with little equipment and led rough, ill-disciplined lives. We must picture great droves of sheep passing ruthlessly, twice yearly, along the dusty routes of the Meseta. Quarrels with cultivators easily broke out, and the opposition between herder and agriculturist is old and bitter. The development of civilised government has been much retarded by this migratory life, which, originating in geographical facts, was encouraged both by historic forces, such as the long struggle against the Moors, and by the commercial value of the fine merino fleeces. The absence of women from the flock-tenders is apt to give Spanish transhumance a hard, uncivilised tone, which is in sharp contrast to the transhumant traditions of Alpine lands.

In the Pyrenees conditions are different, and compare in some ways with Carpathian schemes, but facts of structure favour disparate valley units and have prevented a common mountain life from developing. Relatively long-distance movement of sheep from the Ebro steppe and from the Catalan coast is less important than intramontane transhumance, which, though it involves cattle, horses, and mules as well as sheep, lacks the skilful economy and delicate adjustment of Swiss systems. More attention is given to stock-raising than to dairying, and the pastoral products are typically of poor quality. The unity of certain high pastures astride the political frontier is recognised in agreements which allow French and Spanish flocks to pass freely from one side to the other; this gives opportunities for illicit trade, and makes smuggling a profitable by-product of transhumant life.

Turning now to the British Isles, where seasonal nomadism was in former times an important social and

economic force throughout the Highland Zone of Britain and Ireland, it is interesting to speculate on the connection between transhumant life and the retention of the Celtic languages. In these areas of scattered settlement the wider summer hill life with its attendant gatherings and fairs made wider intercourse possible, and must have helped to keep the Celtic tongue alive. Moreover, as in the Carpathians, the pastoral life would have provided a refuge in times of stress and invasion, as we know from Irish history. The last stronghold of transhumance in the British Isles is the Outer Hebrides, but it survived in Wales and Ireland into the 19th century, and was formerly customary in the Pennines, in Cumberland, Dartmoor and the Mendips. In Wales, large-scale sheep rearing ousted the old economy, in which cattle always took a prominent place, and the seasonal transference of sheep from upland to lowland is a continuation of transhumant migrations, though no longer involving any protracted movement of the population. It appears to have been general for women and children to accompany the men with the herds, and often they took a major part in the summer life. This is true of the Hebrides, where the active men and, indeed, many young women "follow the herring," while the children and older folk are at the shieling with the stock, the community thus combining seasonal nomadism on land and sea.

In Wales, place-names testify to the former universality of transhumance. The *hafod* or *hafoty* is the summer-house, while the *hendref* or *pentre* is the permanent winter home. The Old Welsh laws refer also to the autumn house, recalling the *mayen* of Switzerland and the autumn *saeter* of Norway. In Ireland, too, there is place-name evidence (*booley* or *boley* is the Irish equivalent of the *hafod*) and there are frequent references to the practice from the 17th century. In Achill Island a century ago the whole coastal population in some districts moved to the mountain valleys, having planted their potatoes and oats, taking with them the wattles for their huts and their wooden stools and piggins. The utensils and even the products of the summer dairies are frequently found in the peat in the form of portable churns and "bog butter." Old administrative units (the Welsh *cwmwds* and Irish *tuaths*), which endure under new names, have as their nuclei an area of moorland pasture, with the valley streams serving as boundaries; and many features of the Celtic life and landscape can be understood in relation to transhumant practices. Welsh folk-tales contain references to journeys made with the cattle up to the moors in spring. The "mountainy"

districts in many parts of Ireland are still shared by groups of townlands for summer grazing, the allotment of stock being so many *sums*, a unit of grazing capacity which may consist of horses, cattle, pigs, goats, or poultry, and which recalls the Swiss *stoss*.

Finally, the fiord coast of Norway provides an example of transhumance at its northern limit, modified by the rival claims of summer fishing on the available hands, but enriched, as in western Scotland and N.W. Ireland, by the utilisation of island pastures before the mountains are ready for the spring migration. The snow lingers long on the high fjeld, and use is made of intermediate spring pastures (the *saeter*), where substantial houses are erected which are again occupied in autumn. Since the men are busy at sea and the women must look after the farms, it is the young girls who take the cattle to the high pastures in summer, prepare the butter and cream, and harvest hay for winter fodder. The dairy-maid tradition is here strong. "The time spent up in the mountain pastures was the happiest time of the year. every living creature wanted to go to the mountains."

The decline of transhumance in Europe as a whole has led to the neglect of many hill pastures to which attention is now once more being given. There have been many factors in that decline, among which may be mentioned the fixing of national frontiers along mountain crests and the increasing use of hay and forage crops for stock. Another factor in the general decline, the friction and loss of time involved in transit, has been partly met by the use of special trains to carry sheep in Spain and Provence.

A large and appreciative audience listened with great attention to the lecture, and a hearty vote of thanks was carried by acclamation to Dr. Evans for his most interesting discourse.

ANNUAL MEETING.

The Annual Meeting was held on 19th April, 1941, the President (A. H. Davison, F.R.S.A.I.) in the Chair, when the following Reports were presented:—

ANNUAL REPORT.

In presenting the Seventy-Eighth Annual Report your Committee is glad to be able to record that the full activities of the Club have been maintained throughout the past year.

During the past year 37 members were added to the roll; opposite this there were 22 resignations, 3 deaths, and 13 names struck off for non-payment of subscription. At present

there are 446 subscribing members, 9 honorary, 3 corresponding, and 3 life, making a total of 461, against 462 the year before.

To our five affiliated Clubs has been added another—the Armagh Ramblers, which we welcome. In reference to the Tyrone Club, it has been dormant for some time; and since the death of the Rev. E. M. Gumley, the Omagh Club has not been functioning.

Apart from the Sections, fourteen Summer Excursions were held, and despite War conditions were as well attended as in any previous year.

The Winter Session was opened by a Social Meeting held in the Old Museum on Saturday, 19th October. The exhibits were supplied by the Junior Division, supplemented by the R.B. Academical Institution and the Friends' School, Lisburn. The attendance was most gratifying, and the great success of the meeting was entirely due to Miss Bolton, Hon. Secretary, Junior Division, and the Junior Division Committee.

It is with deep regret that we record the recent death of Mr. William M. Crawford, B.A., F.R.E.S. He joined the Club in 1921 after his return from India, and was elected President in 1926. He acted as Librarian up to the time of his death. This office involved a great deal of unobtrusive work, willingly rendered, as he had a great interest in the welfare of the Club. As to his scientific work, it is only necessary to mention it here, for it is to be presumed that it will be more fully dealt with in *The Irish Naturalists' Journal*.

Three other members, we also regret to record, have passed away since our last annual meeting. Their names are appended to this report.

J. SKILLEN;	} Hon.
W. G. R. SKILLEN,	
} Secretaries.	

OBITUARY.

W. M. Crawford, B.A., F.R.E.S.	H. S. Houston.
Mrs. Emma H. Peacock,	Wm. Brodie.

REPORT OF BOTANICAL SECTION.

Three excursions took place during the season:—

27th April. A large party, conducted by Dr. R. L. Praeger, visited Crawfordsburn Glen (by kind permission of

W. J. Stewart, Esq., M.P.). After tea, Dr. Praeger gave an interesting talk about some of the plants collected during the afternoon.

15th June. Miss Sayers led an excursion to Carngaver, where we saw Lesser Winter Green (*Pyrola minor*). We also found a plantation with *Sorbus aria* and *Sorbus intermedia*; the latter, according to Dr. Praeger, having been probably planted.

14th September. Miss Rea, M.Sc., conducted an excursion to Carnalea to study sea-weeds and to demonstrate zonation.

K. M. BOURKE, } Hon.
W. J. SAYERS, } Secretaries.

REPORT OF GEOLOGICAL SECTION.

The following Excursions were made:—

Saturday, 18th May. Black Mountain. Conducted by Mr. J. J. Hartley, M.Sc. Examination of junction of Chalk and Greensand.

Saturday, 31st August. Craignahulliar Quarry, near Portrush. Conducted by Mr. J. J. Hartley. Examination of Interbasaltic Beds and Columnar Basalt.

Saturday, 21st September. Magheramorne Quarry. Arranged by Mr. A. M.T. Cleland, who was, however, prevented by illness from acting as conductor, Mr. J. J. Hartley very kindly taking his place. Examination of the peculiar stratified marl, secondary chalk and hollow flints containing "flour."

J. K. CHARLESWORTH, } Hon.
W. J. WEATHERUP, } Secretaries.

REPORT OF ZOOLOGICAL SECTION.

During 1940 the Zoological Section held three excursions.

On the 11th May an ornithological expedition visited Muck Island where large colonies of Kittiwakes, Puffin, etc., were seen.

On the 6th July we visited Carnalea under the expert guidance of Professor Gregg Wilson. On the outward journey he gave us a most interesting and instructive talk on the principles of zonation in sea-weeds and in sea-shore animals. On the shore we were privileged to see perfect examples of those principles as they occur naturally, and to study the adaptation of shore animals to the struggle for existence by fixation to rocks, by burrowing in the sand, and by hiding.

The third excursion was held conjointly with the Archaeological Section on 17th August, to Toomebridge and the western shore of Lough Neagh. The zoological interest here was centred in the eel weirs. A short talk was given on the life history of the eel. At the quaint little harbour of Newport Trench living specimens of eels were inspected.

GREGG WILSON, } *Hon.*
J. S. LOUGHRIDGE, } *Secretaries.*

REPORT OF ARCHAEOLOGICAL SECTION.

The Archaeological Section made three excursions during the past Session.

Saturday, 4th May. Dromore. On arrival at the Cathedral, the Rector, Rev. Canon M'Garvey, explained the architecture of the building, and pointed out the existing positions of the original church built by Bishop Jeremy Taylor. He also exhibited some ecclesiastical vestments associated with this celebrated author and divine, as well as the pulpit bible taken from the Cathedral by a Cromwellian soldier. This, through the late Primate D'Arcy and a strange sequence of events, was restored "after an absence of nearly three hundred years." The next place visited was the Norman mote and bailey, locally known as "The Mound." This has been carefully preserved by the Ancient Monuments Council, and now stands as originally erected by the Normans, save for the wooden archery tower and the palisading. Proceeding to Lisburn the members had tea and afterwards walked through the Castle Gardens park where there are some remains of a castle built by Sir Foulke Conway in the 17th Century.

Saturday, 29th June. Killyleagh, via Castle Espie. At the latter place a stop was made to examine the cottage said to be built on the site of the castle, or incorporated in it. The cottage has enormously thick walls supported by outside buttresses, evidently part of the old castle. Close by stands a great stone monument, locally known as "The Cross." It is apparently a natural outcrop, but has been artificially "dressed" to its present shape. At Killyleagh the ancient church was visited, but the graveyard is so overgrown and the church ruins so hidden in ivy, that close inspection is not possible. This old church is claimed by the natives of Killyleagh as being associated with Lady Dufferin's poem "The Irish Emigrant," but this claim may be attributed to

wishful thinking and the "stile" a figment of poetic imagination.

Saturday, 17th August. Arboe. On arrival, after inspecting the High Cross, church, and monastery ruins, a visit was made to the ancient tree, possibly a successor from the days of tree worship. It is covered with votive offerings, and where a main branch leaves the parent stem a natural basin is formed in which rain water collects. This natural hollow claims some of the virtue belonging to the tree. The next stop was at Newport Trench, a harbour on Lough Neagh, which joins up the water traffic with the Lagan Canal. In the unhurried days of last century this harbour was a very busy place, but with the coming of modern transport and the consequent decay of canal traffic this era of prosperity has now ended.

R. S. LEPPER, } *Hon.*
J. SKILLEN, } *Secretaries.*

REPORT OF JUNIOR DIVISION.

The membership now stands at 143, there being 16 new members and four re-joining, and eight resignations. Three members of the Division graduated to the Senior Section.

This year we renewed the experiment of week-end excursions. Two very successful trips were held, the first from Friday, May 31st, till June 2nd, to Cranny Falls Youth Hostel, and the second from Friday, 30th August, till Sunday, September 1st, to Minerstown.

The Junior Division was entrusted to provide the exhibits for the Club's Social Meeting, which took the place of the Annual Conversazione in October. This gave the Juniors an opportunity of displaying to the Club some two year's work, and augmented by the fine displays of the Natural History Societies of the Friends' School, Lisburn, and of the Royal Belfast Academical Institution. A satisfactory number of exhibits was available.

The Junior Division Special Conversazione, held in March, was an excellent evening. Over 120 Juniors and friends attended, and competitions included the identification of birdsong from recordings, etc.

Field excursions, thirteen in all, were well attended over the year, and all branches of Natural History, Archaeology, etc., received attention.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

BELFAST NATURALISTS' FIELD CLUB.

HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 19th.

RECEIPTS AND PAYMENTS ON GENERAL ACCOUNT.

RECEIPTS.		PAYMENTS.	
Balance at Credit of "General Account"		Printing and Stationery ...	£42 9 2
31st March, 1940, viz.,		Postages ...	43 15 11
With Northern Bank, Limited	£3 17 0	Incidentals, Secretary's Telephone	
Subscriptions received:—		Rental, Clerical Assistance, and	
362 @ 6/- and 21 @ 3/-	£111 15 0	Petty Expenses ...	12 0 2
Arrears paid up	10 10 0		
Paid in advance for 1941/42	2 8 0	Hire of Lecture Hall and Committee Room	£98 5 3
Entrance Fees, 33 @ 5/-	124 13 0	Lanternist's Fees	8 15 0
Excursions Account (without charging printing or postages)	8 5 0	"I.N.J." Affiliation Fee, 1941	4 5 0
Social Meeting Account (without charging printing or postages)	19 2 3	Subscription, The National Trust	3 0 0
"Flora" Account:—		"Flora" Account:—	0 10 0
Proceeds of Sales during year	2 12 1	London Storage Charges, Insurance and Postages	2 7 2
Donation, Mr. R. G. Glendinning	3 14 5	Costs of Printing, Publishing, and Distributing	
Club Badges Sold	1 0 0	Proceedings of the Club for Year 1939/40	27 17 10
Junior Division:—	0 6 0	Junior Division Expenses	10 10 5
Subscriptions			
Conversazione	2 8 0	Balance at Credit of "General Account" at 31st	155 10 8
	0 1 4	March, 1941, viz:—	
		With Northern Bank, Limited	10 8 5
			£165 19 1

RECEIPTS AND PAYMENTS ON ACCOUNT OF "BELL-WELCH MEMORIAL FUND"

RECEIPTS:		PAYMENTS (None).	
Balance at Credit of Fund at 31st March, 1940 (£104. 18s. 2d.)	Interest.	Balance at Credit of Fund at 31st March 1940, viz., £107 10s. 0d., on Deposit with Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Bell-Welch Memorial"	Interest.
Interest Credited by Belfast Savings Bank for Year to 20th November, 1940	£3 3 6	... £5 15 4	£101 14 8
	£5 15 4		£101 14 8

R. G. HENDERSON, Hon. Treasurer.
1st April, 1941.

Audited and Found Correct.
W. P. CHANDLER, }
A. M. M'KISACK } Auditors.
9th April, 1941.

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1942.
(SEVENTY-NINTH YEAR)

SERIES II.
VOLUME X.



PART IV.
1941-1942.

BELFAST NATURALISTS' FIELD CLUB.

SEVENTY-NINTH YEAR, 1941-1942.

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PROCEEDINGS.

SUMMER SESSION.

Owing to many transport difficulties, due to the War, no Excursion Programme was issued for the Summer Session. As the Excursion Sub-Committee could arrange them, notices for each Excursion were sent to the members. There was no Long Excursion and the usual Conferences were abandoned. Eight Excursions in all were held, but owing to Wartime restrictions no reports have been appended.

20th May	...	...	Belfast Castle Estate.
3rd June	...	...	Castlereagh Hills.
14th. June	...	...	Dundrum and Newcastle.
24th June	...	...	Ballyutoag.
5th July	...	...	Galgorm Castle Demesne.
9th August	...	...	Hillsborough
23rd August	...	...	Armagh City.
6th September	...	...	Muckamore.

WINTER SESSION.

The authors of the Papers, of which abstracts are given, are alone responsible for the views expressed therein.

SOCIAL MEETING.

Owing to the continuance of the War the usual Conversazione was abandoned. As a substitute, a Social Meeting was held in Museum Buildings on Saturday, 18th October, at 2.30 p.m. At this meeting the Junior Division gave an excellent Exhibition of the results of their work during the Summer Session. There was a very good attendance, Tea being served at 4.30 p.m., and everyone pronounced the evening had been a great success.

All other meetings were held in the Museum Building and on Saturdays at 3.0 p.m.

WATER AND LIFE.

At the opening meeting of the Winter Session, held on 15th November, the President (Mr. J. S. Loughridge, M.D., F.R.C.S.) delivered his Inaugural Address, taking as his theme the above subject. During the course of his remarks the President said:—

Of the total extent of the earth's surface the oceans make up three-fourths, about 130 million square miles.

The average depth of the ocean is about 1,900 fathoms, from which it follows that the volume of water in the ocean basins may be reckoned at over 300 million cubic miles. This oceanic mass forms a single continuous domain. This vast space is everywhere inhabited by living organisms. On the other hand, terrestrial life occupies but a thin stratum which, even in forests, does not ordinarily exceed some 90 feet in thickness. Again the occurrence of water is no less important upon the land. In addition to lakes and rivers, water is everywhere present in large quantities in the soil, held there by capillary action. The atmosphere also contains an abundance of water in vapour and cloud form.

Water has one of the highest specific heats, that is, more than nearly any other substance, water can absorb or give off more heat for a given change in temperature. The most obvious effect of the high specific heat of water is the tendency of the ocean and of all lakes and streams to maintain a nearly constant temperature. A second effect is the moderation of both summer and winter temperatures of the earth. The high heat capacity of water operates in a third way; for directly and indirectly it is involved in the formation and duration of ocean currents. The contrast between the mild winters of our own shores and those of Labrador is an indication of the amount of heat carried to us by the Gulf Stream. A similar and even more important function is the direct promotion of winds with the resulting distribution of aqueous vapour throughout the atmosphere, a primary factor in the dissemination of water in the form of rain. Here the essential thing is the existence of a vast warm reservoir in the tropics and of two similar cold reservoirs at the poles. In a word the usually high specific heat of water tends automatically and most effectively to regulate the temperature of the whole environment, of both air and water, sea and land, and that of the living organism itself.

It requires as much heat to change ice at 0 degrees centigrade into water at 0 degrees, as it does to raise the temperature of the resulting ice water to 80 degrees C. It follows that a mixture of ice and water can absorb or give out great quantities of heat without any change whatever in the temperature, the only change being an increase or decrease in the amount of ice in the mixture. Accordingly as long as the earth shall remain habitable the cooling of the ocean will be rigidly limited by its freezing point. However inclement the atmosphere, the ocean can always

support life until all water becomes frozen. It is worthy of note that the freezing point of water, though to man, with his carefully regulated body, appearing low, is, in reality very high indeed when compared with that of any other like substance with three atoms in the molecule; it is about 100 degrees C. above the average. This is one of the most important facts with which we are concerned now, for many chemical reactions of living occur at or above 10 degrés C. that could not occur at lower temperatures. The latent heat of melting of water is, with one exception, much the highest known, thereby rendering the ocean a most effective modifier of cold climates.

The latent heat of vaporisation of water is by far the highest known—536 calories per gram. So great is this quantity that the latent heat of evaporation is one of the most important regulatory mechanisms at present known to meteorologists. At the equator the amount of heat which is employed in evaporating water from one square mile has been estimated to equal $2\frac{1}{4}$ million horse power. The effect of this enormous evaporation is to moderate the temperature of the tropics; but the heat which thus disappears is not lost. Rendered latent at the place of evaporation, it is turned back into actual heat at the point of condensation, and thus serves to warm another and cooler locality. The magnitude of the ocean currents and their effect in transference of heat was vividly brought home recently by the scientific work of the Russians in their drifting north polar station. On the 21st May, 1937, with the help of four aeroplanes, an expedition was landed on the ice at the North Pole, and an observatory established. The aeroplanes flew away leaving Paninin and three colleagues on the ice. They remained on the ice until the following February, a period of 274 days. During this period the four Russians were carried from the North Pole to the East Coast of Greenland where they were taken off a broken up ice floe in lat. 70 N. and long. 19 W. During the 274 days they covered 1,134 miles in a straight line, or nearly 1,500 miles actually when zig-zags and loops are counted. This means the ice is flowing from the North Pole at the average rate of 5.6 miles per day, being slowest near the Pole and increasing further south, reaching 12.3 miles daily. The prevalent winds in the polar basin are northerly and north-westerly. These winds acting over a vast stretch, create a general flow of ice towards the Greenland sea. The moving ice draws with it the upper layers of water. To replace both much water flows in from the Atlantic. Even near

the Pole, under a comparatively thin layer of cold Arctic water with the negative temperatures common to polar seas, a layer was found with positive temperature. North of the 86th parallel the upper negative isotherm is at 250 metres, the lower at 750 metres. Thus the thickness of the layer of water with positive temperature in the region of the Pole is 500 metres. It has a maximum of 0.77 degrees C.

Quite as important to man and animals as this great power of meteorological regulation is the corresponding physiological activity, evaporation of water from the skin and lungs, where the loss of excessive heat is more efficiently done than in the radiator of a motor car. The regulation of temperature by evaporation is not confined to animals, being if anything more important in plants.

The expansion of water when cooled from 4 degrees centigrade to 0 degrees centigrade together with the expansion on freezing is largely responsible for the permanence in liquid state of many bodies in cold climates. Were it not for this unique anomaly and the buoyancy of ice the cold water in our rivers, lakes and oceans would freeze and the ice would sink to the bottom and persist throughout winter and summer until most or all water would be converted into ice.

Such in brief outline are the more important physical properties of water which render it suitable as a physical basis of life. These properties are extraordinarily, often uniquely, suited to the complex mechanism of life. In no case do the advantages which these properties confer seem to be trivial, commonly they are of the greatest moment. No other known fluid can take its place, in the least degree, as an environment for simple organisms, or as an internal environment or a "milieu interieur" as Claude Bernard called it, of all living organisms.

Early in the last century, when natural theology and argument from design were the subjects of acute controversy, much emphasis was put on such of these unique properties of water as were then known.

The most striking of all the ocean's qualities is its constancy. No doubt since its geological origin it has grown colder and more saline, but a million years are but a night in such a process which is more complicated than would at first appear. It has not been simple and continuous, obeying Newton's law of cooling, but intermittent, with alternate periods of heat and cold, as coal in Spitzbergen, fossil tropical plants in Greenland, and fossil corals in Sligo prove.

The present day temperature of the ocean varies slightly not only from place to place but also with the seasons. The polar seas may fall below 0 degrees and in the tropics the temperature may rise to 30 degrees centigrade—a range which is small compared with that which occurs on land—57 degrees to minus 35 degrees C.

The degree of seasonal variation in temperature varies with the place. The temperatures of the tropical and polar seas are relatively uniform, the greatest variation being in the temperate zones.

A stratification of temperatures also occurs. The heavy cold polar water sinks and gradually spreads out on the bottom, and the lighter warmer water of the tropics flows towards the poles. Over 80% of the ocean floor is a mile or more below the surface and has a temperature of 2 degrees or less. In the Mediterranean the Straits of Gibraltar have a greatest depth of 400 metres and therefore form a submarine ridge keeping out the cold water of the bottom of the Atlantic.

Leaving the physical side of water we may now say a few words on the Chemistry of Sea Water.

Sea water is a solution whose composition varies slightly from place to place. In the open sea the salt content is nearly constant at 3.5%. Variations from this are small in amount. Near land the percentage of salt is reduced owing to its dilution by fresh water from rivers. In the Baltic, for example, there is only 2.9% of salt. On the other hand salinity is increased by rapid evaporation. The best example is the Red Sea, where the great heat of the sun and the absence of rivers causes the salinity to rise to 4%. The greater part of sea salt consists of the chlorides of sodium, magnesium and potassium, also the sulphates of magnesium and calcium. The presence of these salts in the water gives rise to what are known as osmotic pressures. Osmotic pressure rises with increasing concentration and falls with dilution. It amounts to no less than 26 atmospheres in the waters of the Red Sea, but in the waters of the Baltic it may fall as low as 5 atmospheres. Osmotic pressure affects the cells of animals most directly in contrast with the pressures exerted by great depths of water. Marine animals, with the exception of the fishes, have the same concentration of salt as has sea water. This is probably why many animals are very sensitive to variations in salinity. There are, however, a few exceptions of which the best examples are migratory forms like the salmon and the eel and estuarine types like the shore crab.

Among the more important of the sea salts, calcium is the only one which varies much. It is used by innumerable animals to build up spicules, shells and skeletons. Its absorption is affected largely by temperature—being rapid at 25 degrees and more, and very slow at temperature below 10 degrees. Thus calcium deposits by animal life reach their maximum in the tropics where the reef corals build gigantic masses of rock and the shell of the giant clam may reach a weight exceeding 500 pounds ($\frac{1}{2}$ ton). Nitrates and phosphates are both indispensable for the growth of plant life and therefore indirectly for animal life.

The one chemical essential to life of which the supply is limited is oxygen. In sea water oxygen is present only to the extent of $\frac{1}{2}$ per cent. by volume, putting gill-breathing animals at a very considerable disadvantage, compared with lung-breathers who can tap 20 per cent. of oxygen in the atmosphere.

The advantages to be gained from these striking attributes of water of course reach a maximum in the ocean. The immensity of the ocean waters, their uniform composition and temperature, their adequate supply of food, their suitability as a medium for the development of each new generation—make them an ideal abode of life. In fact the sea forms the greatest haunt of life, being much richer in different forms of life and in numbers of individuals than land or fresh water. Many of the facts of present day life can best be explained on the supposition that life began in the sea. It is a striking and peculiar fact that sea water when diluted about three times contains the same salts in about the same concentration as does the blood serum—the only exception being magnesium sulphate. This observation holds for the sera of widely different animals. On account of this general resemblance to diluted sea water it has been suggested that the circulating fluids of all animals originally came from the sea water of millions of years ago. In other words our blood is nothing more or less than a modified sea water. Even if this were so, the animals of today are the products of millions of years along widely different paths, but in spite of this their bloods are remarkably alike in ionic composition. This suggests that the conditions under which life is possible are very restricted indeed, and have not changed substantially since life first began. The composition of the blood has remained the same because the conditions under which life is possible have remained the same. It has been actively maintained, as indeed it must be if life were not to become extinct,

Turning from the ocean, with its freedom from dessication and its benevolent uniformity, we may look briefly at those parts of the earth where water is scarce or absent, namely, the deserts. The deserts are not lifeless wastes; living things are surprisingly abundant, for both plants and animals have solved the water problem in a variety of ways. The annual herbs come forth after the rains, usually winter rains, and produce leaves, flowers and fruits in a short season; and having produced seeds, die away, leaving the problem of another season to another generation. They are truly plants that live for a term of days. Desert plants that live for years cannot answer the desert problem so simply as the annuals, but they have succeeded in various ways. The leaves show all the characteristics of Xerophytes. The root systems are extensive, reaching down for subterranean water, their stems are hard and resistant to drying. In the cactuses the leaves have been eliminated; the stems have taken over the function of the leaves and in addition serve as water storage vessels.

Not only are there plants in the desert, there are animals as well. Some insects as well as some lizards secure their water from plant juices. The snail seals its shell until water comes again. But the eaters of seeds and dry wood have a difficult problem. The larvae of the powder-post beetle are plump and juicy, yet their only food is the dry desert ironwood. They obtain their water by the oxidation of carbohydrates—the so-called water of metabolism. In most animals water is squandered, but these desert animals conserve every drop.

We owe to Claude Bernard the conception of the internal environment. The essence of the idea of the internal environment is that the cells within the bodies, particularly of the higher organisms, are bathed by fluids which constitute an inner environment. Life is possible only if these fluids vary within very narrow limits. The living organism tries to maintain as constant as possible the composition of this internal environment, and if the balance is slightly upset in one direction, reactions take place which tend to restore the balance. A higher organism is, therefore, virtually independent of its external environment. It is, as it were, enclosed in a hot house, so that the perpetual changes of its worldly environment do not reach it; it is not chained to them; it is free and independent. Bernard's great conception is of fundamental importance in present day physiology. All physiological processes take place in an internal environment whose basis is water. We

have not time to-day to give a list of these reactions, much less to discuss them, but we may mention two examples.

We have already mentioned how salts dissolved in water create an osmotic pressure. When two solutions of different concentration are separated by certain membranes, the osmotic pressure tends to drive water from the weaker to the stronger solution, until the concentrations are equalized. Animal tissues form such a specialized membrane. Consider the case of a fish whose blood and tissues contain just less than 1% of salt. It is living in a medium containing 3.5% of salt. the osmotic pressure, following its natural course, will tend to drive water out of the fish's body into the sea. How does the animal succeed in preventing this serious loss? Largely by covering itself in waterproof scales. In the case of fish with no scales or rudimentary scales, an alternative must be provided. This is why the eel is covered with a layer of slime or mucus. The only area on both scale and non-scale fishes from which water is lost by osmosis is the surface of the gills. The loss even here would be serious, were it not for the recently discovered chloride cells in the gills which have the power of secreting chlorides as rapidly as the water is lost, thereby keeping the percentage of salt in the tissues constant. The water and salt lost is replaced by swallowing sea water and absorbing it, salts and all, from the gut. If swallowing is prevented by introducing a rubber balloon into the oesophagus, the fish is unable to keep up its regulation and soon dies.

The fresh water fish has the reverse problem to solve. Its tissues, like its salt water cousin, contain nearly 1% of salt. The surrounding water, having no salt, tends to be drawn into the fish by osmosis, and the fish is in constant danger of being literally drowned by water-logging of all its tissues. The waterproofing of the skin is of course useful, but the constant fresh water absorbed by the mouth and gills is filtered off by the kidneys as a very dilute urine.

Migratory fishes like the salmon and the eel have to solve both problems, and the adaptations may be studied by the changes in weight. Thus in the passage from fresh water to sea water, the high osmotic pressure of the latter draws water out of the tissues of the fresh water eel and it loses weight rapidly. As the eel adapts itself to the new environment it regains most of the lost weight. Again on passing from salt water to fresh, water is at first drawn into the eel and its weight increases above the normal. With

adaptation to the fresh water, its weight returns to the normal.

Finally if we take a large jelly fish, weighing about one pound, and lay it on the open pages of a book, it is possible to read the distorted print through the more or less transparent outer umbrella, though the central part is more or less opaque. Now if we allow this jelly fish to remain on the page until it is thoroughly dry, the paper simply appears as though it had been wetted and dried. No noticeable film is discernible on the surface of the page and the print is clear cut. (See Plate 4).

ANALYSIS OF JELLY FISH.

Fresh weight.	Jelly Fish (1)	Jelly Fish (2)
	146.19 gm.	147.36 gm.
Residue after drying at 80°C.	5.67 gm.	5.60 gm.
Residue after drying at 108°C.	—	5.46 gm.
Ash after heating in furnace at 850°C.	—	4.475 gm.
Total " protein " (total N by Kjeldahl X6.25)	0.180 gm.	
Percentage of water	95.8 per cent.	
Inorganic Ash	3.03 , , ,	
Protein	0.12 , , ,	

Such observations raise the question as to what constitutes the most important part of the living organism. Is it the organic portion—the proteins, the fats and so on; or is it the inorganic portion—the salts, calcium, sodium, the chlorides; or is it the water which in the case of the jelly fish comprises over 95 per cent. of the animal? There can only be one answer. All are equally important. All are a part of the living substance which we call protoplasm. The water in the medusa is as much " alive " as are the proteins, the fats, the carbohydrates, and this " living water " must be sharply differentiated in some way from the great mass of water which surrounded the living jelly fish in the sea. The problem of the nature and degree of this differentiation is one which requires for its solution all the skill and ingenuity of the biochemists of the future. Even when they have only been partially solved, these problems will have inaugurated a new day in biochemistry and in medicine, for the water relations in the living organism lie at the foundation of problems concerning both health and disease.

I am indebted to Professor D. C. Harrison, Department of Biochemistry, Queen's University, Belfast, for the analysis of the Jelly Fish which he kindly carried out.

There was an excellent attendance and the address was well illustrated by many lantern views of first rate quality and a number of clear diagrams.

LOCAL MEDICINAL HERBS.

The second meeting of the Winter Session was held on 29th November when Miss F. M. I. Adams, M.Sc., read a paper on the above subject. During the course of her remarks Miss Adams said:—

The writer of a modern herbal says:—" Botany and medicine came down the ages hand in hand until the 17th century; then both parts became scientific, their ways parted, and no new herbals were compiled. The botanical books ignored the medical properties of plants and the medical books contained no plant lore."

For many years the plants which are the bases of crude drugs have been imported, even those that could be obtained from wild plants growing in our own countryside such as foxgloves, male fern, valerian, etc. The question naturally arises—why are these local plants not collected and made use of? To answer this question one must realise first of all that the annual consumption of Great Britain runs into hundreds of tons of crude dried material, most of which normally comes from the continent, some of this material being re-exported to the western hemisphere. The difficulty of collecting sufficient quantities of local wild plants in the right condition and the expense involved in setting up drying sheds and the requisite machinery have not seemed so far worth while as a profitable commercial undertaking, though there are of course *materia medica* farms in various parts of England associated with big drug companies.

At the present time there is a serious shortage of some of the drugs in question and several schemes have been suggested for the collection, harvesting and increased cultivation of medicinal herbs. Now the question arises as to which plants are the most important. The Medical Research Council recommends that effort should be concentrated on the following: —Belladonna, foxglove, henbane, stramonium, male fern, colchicum, sphagnum, dandelion root and valerian. There are a great number of other plants in frequent medicinal use and common in herbal practice, but, as Dr. James of Oxford University says, no one is going

to die prematurely or suffer great pain for lack of them, but many may die or suffer for lack of foxglove or belladonna.

FOXGLOVE.

Since Foxglove leaves are the source of one of the most important drugs and since those of other plants may readily be mistaken for them, it is necessary to give a detailed description of the leaves. The radical leaves are a foot or more in length and three to six inches in breadth, the upper part being more or less ovate and contracted at the base into a long winged footstalk. The margin of the leaf has crenate indentations. Both leaves and stalks are covered with numerous soft velvety hairs. These hairs distinguish Foxglove leaves from Comfrey leaves, which they much resemble in shape. The latter are very harsh and rough to the touch, this being due to the coarse bristle-like hairs with which it is clothed. The use of Foxglove is comparatively recent, although employed by the old herbalists for various purposes in medicine. The active principles which render it most useful in the hands of the modern physician were unknown till about the middle of the 19th century. It is used in many forms of heart trouble. A whole series of glucosides has been extracted from the leaves. These different glucosides vary in their physiological action, some being extremely poisonous. No animal is known to browse upon the plant, instinctively recognising its poisonous character.

BELLADONNA (DEADLY NIGHTSHADE).

This plant has an interesting history. In England it is found growing near ancient abbeys where it was once cultivated. In Ireland it grows on islands in the Shannon; in Clare and on the shores of Lough Mask; in Antrim near Ballycastle. The flowers of Belladonna are a dull brownish-purple; the fruit is a large shining black berry; the leaves are simple and are generally borne in pairs of unequal size in the following parts 3 to 8 inches in length. The plant may be distinguished in this way even when not in flower.

The poisonous properties of Belladonna have long been known. The name Belladonna, "beautiful lady," was given to this plant by the Italians who prized it for the effect upon the eyes, as it dilates the pupils. All parts of the plant contain the alkaloid hyoscyamine which is easily converted into atropine and which acts upon the central nervous system. It is used in asthma and cases of pneumonia and typhoid. The leaves were introduced into the London Pharmacopoeia in 1809, the roots later.

HENBANE.

This is another poisonous plant belonging to the same family and is found growing in different parts of Ireland, but is not very common. It seems to have been common enough in Gerard's time (reign of Queen Elizabeth). Hyoscine, from Henbane, is probably one of the oldest narcotics known. It is used in modern surgical practice and as a cerebral and spinal sedative, and to induce twilight sleep. It is supposed to be the herb referred to in Hamlet when his uncle poured a concoction of it into the King's ear.

MALE FERN (*Aspidium Filix mas*).

This fern is one of the commonest of our native ferns. Its use as a vermifuge goes back to very ancient times (Theophrastus, 600 B.C.). The underground stem is the part used, where remarkable secreting glands are found which are the source of the substance used. It has a toxic action on tape worm.

VALERIAN.

There are many different species of Valerian, but the one used medicinally has a white flower with a pinnate leaf something like an ash leaf. It grows near woods and by river sides.

It has interesting associations, the spikenard of the Bible being one of the valerianaceae. The ancient races used the plant in epilepsy and nervous diseases. The odour of spikenard, which has been described as a mixture of musk, patchouli and valerian, has long been prized in India as a perfume. Valerian has been in use from pre-Christian times and has had a place in every pharmacopoeia for its action in nervous complaints.

DANDELION.

It seems strange that this plant and the nettle, two of our commonest weeds, should have to be imported in large quantities. The use of Dandelion in domestic and herbalistic medicine goes a long way back. It was used by Arab physicians in the 10th and 11th centuries. The young leaves are used in concoctions to aid the digestion and as a tonic. The root is the part most generally used. The plant contains a bitter milky juice or latex, a crystalline bitter substance taraxacin, and several other constituents. Its use is mainly in dyspepsia and also in kidney and liver disorders.

COLCHICUM.

Colchicum is the meadow saffron, or Autumn Crocus. The flowers are similar to the ordinary crocus and appear above ground in the autumn without any leaves. The plant

is common in pastures in England, but was exterminated on account of the danger of poisoning cattle. All parts of the plant are poisonous and contain the alkaloid colchicine, the active principle well known for use in acute gouty and rheumatic complaints.

SPHAGNUM.

Sphagnum or Bog Moss is one of our commonest plants in bogs or damp moors, where in many places it forms peat. It is like a sponge and can hold an immense quantity of water. It is this quality which makes the moss so valuable as an absorbent dressing for wounds. Good quality sphagnum is from 10 to 20 times as absorbent as cotton wool.

Sphagnum has quite an interesting history. A Gaelic Chronicle of 1014 tells how the wounded at the battle of Clontarf stuffed their wounds with sphagnum. Lowlanders, or Scottish troops, after Flodden staunched their bleeding also with the moss. The Esquimeaux use it. The Lapland mothers dry it and lay it in their children's cradles where it takes the place of mattress, pillow and other covers.

The moss is pulled up in handfuls, picked clean of twigs and grass, etc., and the water squeezed out. It is then left to dry in the air without artificial heat. About 2 ozs. of the dried moss is placed in butter muslin bags, 10 by 14 inches, and is then sterilized by passing through a solution of corrosive sublimate, then squeezed out and dried again before using.

BROOM (*Cytisus scoparius*).

The Broom has been used from antiquity and it is a remarkable fact that it is the only native medicinal plant of the Natural Order Leguminosae used as a drug which is official. The leaves, which are present for a short time in the spring, consist of three small leaflets and are often reduced to a single leaflet. The young tips of spring leaves are the parts used; they contain several alkaloids and are used for dropsy. The bark yields a fibrous matter which has been used for the manufacture of paper and cloth. It also yields tannin. The tender green tops have even been used to give a bitter flavour to beer before the introduction of Hops.

CLASSIFICATION OF PLANTS ACCORDING TO THEIR PROPERTIES.

Rosaceae. Many astringent plants used in herbalism belong to the Rose family. Blackberry leaves have been used in medicine for centuries. Both leaf and plant were

said by Gerard to be astringent. The Wild Raspberry was utilized by the Greeks medicinally. The roots and leaves of the Strawberry are astringent and used to be given in dysentery. Rowan berries were used to make a drink and were recommended for scurvy.

The Wild Apple was said to be "virtuous in medicine" by the old herbalists. It is the wild ancestor of all the cultivated varieties. Fresh apples are rich in vitamins.

Last but not least, our beautiful Wild Rose of the hedge-row may be said to have come very much into the limelight of late. Of this Gerard said in his herbal of the 15th century:—"Wild Rose fruits maketh pleasant meats and banqueting dishes as tarts and such-like; the making whereof I commit to the cunning cook, and teeth to eat them in the rich man's mouth." In later practice rose hips were employed as an astringent. Recently it was discovered that they contained a very important vitamin, and the manufacturing chemists are preparing a standardised vitamin C syrup from this source.

Wormwood is a near relative of the Mugwort, very common on waste land. When Indian tea cost 7/- a pound Mugwort was used as a substitute in the West of England. A French physician first prepared a drink from Wormwood. Absinthe, the modern liqueur made from Wormwood, is an alcoholic infusion made from this plant and a powerful stimulant. The plant contains a bitter crystalline glucoside.

Other plants that may be mentioned are:—Tansy, Coltsfoot, Burdock, Common Nettle, etc.

With regard to the latter, in herbalistic practice nettles have been used for a variety of complaints. They are said to be one of the best anti-scorbutics. The juice has been used as an astringent gargle; a lotion for burns and for gout. In cases of palsy and paralysis the unfortunate patient was switched with a bunch of nettles. Pepys in his famous diary spoke highly of nettle porridge.

SEA-WEEDS.

Among many plants which had an old-time popularity is one in greater demand than ever, one of the Red sea-weeds, Carrageen moss. It is abundant on the rocky shores of Western Ireland from below low-water mark to three-quarters tide-level. It is prepared for use by soaking, then simmering for about half an hour. The viscous liquid is then filtered through muslin to remove plant remains and milk or other flavouring matter added, and when cool sets to a jelly. It is said to confer longevity by its constant

use. In addition to the gelatinous matter forming 50-60% of the whole, mineral matter containing iodine, calcium, sodium, potassium, magnesium and traces of bromine, chlorine and sulphur are present.

NEW CONTRIBUTIONS TO THE STUDY OF CRANNOGS.

The third meeting of the Winter Session was held on 17th January, 1942, when Mr. Oliver Davies, M.A., read a paper on above subject, well illustrated by lantern views.

[No abstract.]

[NOTE.—A detailed account of Mr. O. Davies' recent work on Crannogs appears in the "Ulster Journal of Archaeology," Vol. 5, Parts 1 and 2, 1942, page 14 *et seq.*]

WATCHING AND PHOTOGRAPHING THE BADGER.

This lecture was arranged by the Committee of the B.N.H. & P.S., and was given by Mr. T. O. Rutledge, A.R.P.S., on 31st January, 1942, before a large and appreciative audience. It was delivered in a very attractive manner and was illustrated by a series of splendidly artistic lantern views from the lecturer's own negatives.

[No abstract.]

DEMONSTRATIONS IN PHYSIOLOGY.

This meeting was also arranged by the Committee of the B.N.H. & P.S., and was held in the Department of Physiology, Queen's University, on Saturday, 14th February, 1942, at 2.45 p.m. There was a good attendance of members, who were met by Professor Henry Barcroft and his students who had a number of microscopes ready and with the latter demonstrated many phases of human physiology.

A very pleasant and instructive afternoon was thoroughly enjoyed by all present, the meeting terminating in a hearty vote of thanks to Professor Barcroft and his assistants for the excellent programme provided.

FOSSIL PLANTS OF THE COAL MEASURES OF FIFESHIRE.

The sixth meeting of the Winter Session was held on 28th February, 1942, when three papers were presented as follows:—"Fossil Plants of the Coal Measures of Fifeshire," by Mr. H. S. Black; a paper dealing with Botany by Miss K. Bourke, B.Sc.; and a paper dealing with Zoology by Mr. R. MacDonald.

In the course of his remarks Mr. Black said:—

In Carboniferous times land vegetation was extremely rich for the first time in the history of the world. The climate was temperate and uniform over an extensive area, about 70 degs. or 80 degs. summer temperatures for a very considerable time. The soil was absolutely virgin and extremely rich. There had been nothing to abstract the carbon dioxide from the atmosphere. This carbon dioxide was produced by the volcanic activity of the Ordovician, Devonian and Lower Carboniferous periods.

This vegetation is used for the correlation of one coal field with another, because the flora developed so rapidly. Plant remains constitute the best, perhaps the only, available criteria. They are also of value in correlating individual seams. They are recognised by the percentage of the various groups of plants occurring in associated rocks. Hence the significance of our study of some of these plants.

I shall not trouble you with the names of the subdivisions of the Coal Measures. They are four in number and are named after the most productive areas. Each is characterised by possessing a high percentage of one genus out of a number of definite plants in a well-defined flora.

The plants, however, are slow spreaders, so they are not good for world-wide correlation. One of the most important groups of the Carboniferous flora is the *Pteridosperms*, a kind of half-fern. They are seed-bearing plants. They are extinct now, but connected, perhaps, with the present day ferns. In fact, the fern-like leaves of the Coal Measures were originally thought to have belonged entirely to ferns, but many, it is now known, belonged to the *Pteridosperms*, plants with foliage like that of ferns, but bearing seeds like those of the *Cycads*. It is probable that the *Pteridosperms* and *Cycads* arose from a common but unknown ancestor.

The *Pteridosperms* became extinct in the Permian. The ferns, on the other hand, have persisted from the Palaeozoic to the present day, though no Carboniferous species is known to have passed beyond the Permian, and the family at present predominant, including amongst its members the Bracken, Male Fern and Spleenworts, cannot be traced back with certainty beyond the Jurassic. Both ferns and *Pteridosperms* are characterised by large leaves and by the fact that the fructifications were borne on the leaves, not aggregated in cones as in the *Lepidodendron*. The plants, seed plants, included herbaceous forms, some having the general habitat of the modern Spleenwort (*Asplenium*).

Others were slender-stemmed scramblers, relying for support on the surrounding vegetation. Others again, and these more frequent towards the end of the Coal Measure times, had the habit of tree ferns, with stems two or more feet in diameter and up to seventy feet high. They were clothed with a thick felt of innumerable descending roots and bore a large crown of massive spreading fronds. The considerable development of air spaces in many of the roots suggests that some of these tree ferns grew in swampy ground. Others no doubt inhabited the gentle slopes and higher ground surrounding the swamps. Some time ago the Coal Measure period was called the Age of Ferns because *Filicales*, or ferns proper, were said to be profusely represented. There were many fern-like leaves to be found. It is now known, however, as has been previously stated, that these leaves did not belong to ferns, but to primitive seed plants with similar foliage, determined by the type of fructification borne.

The seeds of most *Pteridosperms* were wind pollinated and were shed from the plant so that further development occurred on the ground. The primitive seeds of *Pteridosperms* never, so far as is known, developed an embryo, but there still exist doubts in certain cases as to whether a particular specimen is a fern or a *Pteridosperm*. In fact, only when seeds are found attached to the leaves can we be absolutely sure that we are dealing with a *Pteridosperm* and not a fern, though in many cases the indirect evidence may be strong.

We study the leaves to determine the genera, and we conclude, having, for example, determined the genus *Alethopteris*, that the leaves belong to *Pteridosperms*, though in many instances attached seeds have yet to be found.

Many of the leaves, e.g. determined as being *Pecopteris*, or *Sphenopteris*, would belong to *Pteridosperms*, but some were almost certainly the foliage of ferns according to Dr. Crookall.

In conclusion, I will briefly describe the venation of the leaves of five predominant genera:—*Alethopteris*, *Pecopteris*, *Neuropteris*, *Odontopteris* and *Sphenopteris*. Our deliberations are systemised according to the venation of the pinnule, and its attachment to the stem. We examine the pinnule to determine whether the secondary veins are forked or simple and do not form a network. If they do form a network the plant may be *Linopteris* or *Lonchopteris*.

In both *Alethopteris* and *Pecopteris* the pinnules have

a distinct midrib which continues to the apex, attached by the whole breadth of the base and often decurrent, but *Alethopteris* has pinnules which are long and linear with many secondary veins almost at right angles to the midrib, while *Pecopteris* has short pinnules, with margins often almost parallel. The secondary veins are comparatively few in number and are almost at right angles to the midrib, as with *Alethopteris*. The pinnules are not contracted at the base.

As regards *Neuropteris* and *Odontopteris*, the pinnules have an indistinct midrib which does not continue to the apex. The pinnules are oval or tongue shaped, entire and rarely lobed.

Neuropteris has pinnules attached by a single point to the rachis and the base is more or less cordate. One vein, the midrib, enters the pinnule from the rachis, then forks several times, producing secondary veins which arch.

Odontopteris has pinnules which are attached by the whole breadth of the base, often decurrent. Several veins enter the pinnule from the rachis, then fork several times, producing secondary veins which arch.

So these types are distinguished by the attachment of their pinnules to the rachis.

Lastly *Sphenopteris* is one of those plants whose pinnules are contracted at the base, often lobed or toothed. The pinnules are small and often wedge-shaped at the base. The veins radiate in a fan-like manner from the base of the pinnule.

There is one final point to be mentioned, that is the question of extinction.

The *Pteridosperms*, as well as most of the other Palaeozoic plantae, including the *Lycopodiales*, became extinct comparatively suddenly at about the end of the Permian period.

The remarkable completeness and rapidity of this process, permitting the survival of but one Palaeozoic group (the *Filicales*), still with us to-day, requires an explanation. It has been one of the greatest changes in the history of plants.

In the Northern Hemisphere we have evidence in the red beds developed locally at the top of the Coal Measures, of the inception of arid conditions, a conclusion which is also suggested by the appearance of growth rings in stems (so called annual rings), indicating a succession of distinctly marked seasons.

The considerable development which took place in Coal Measure floras was probably in the main due to the presence of adequate moisture, not only for growth, but also for fertilisation, and the extinction of so many Palaeozoic plants under dry conditions was also probably due to their dependence upon free moisture for the completion of the act of fertilisation.

In the Southern Hemisphere the extinction of the Palaeozoic plants was even more complete than in the Northern and is supposed to have resulted from the advent of glacial conditions.

[No abstracts were received of the papers by Miss K. Bourke and Mr. R. MacDonald.]

SOME NOTABLE FRIENDSHIPS.

The seventh meeting of the Winter Session was held on 14th March, 1942, when Dr. S. W. Allworthy, M.A., President of the B.N.H. & P. Society, gave his Presidential Address, taking as his subject "Some Notable Friendships," illustrating it by many excellent lantern views. The meeting was well attended by a very appreciative audience.

ANNUAL MEETING.

The Annual Meeting was held on Tuesday, 14th April, 1942, at 7.45 p.m., the President (J. S. Loughridge, B.Sc., M.D., F.R.C.S.) in the chair. The following reports were presented:—

ANNUAL REPORT.

In presenting the Seventy-eighth Annual Report the Committee is pleased to record that under the War conditions prevailing there has been little diminution in the work of the year, but a falling off in membership, as was to be expected.

Since the last Report 12 members have been elected, and against this there was a loss through deaths, resignations, removals and lapsed memberships of 42, showing a decrease of 30, the membership now standing at 416.

With regard to the Club's excursions, the difficulty of hiring buses has prevented any travelling far afield. It has therefore been necessary to revisit local and familiar ground, sites within easy reach of the city, and favourably situated for this purpose.

It is gratifying to report that all the meetings of the Winter Session were well attended and that interesting discussions accompanied each one.

In conclusion, the Committee regrets to record the decease of several members whose names are appended.

J. SKILLEN, } *Hon.*
W. G. R. SKILLEN, } *Secretaries.*

OBITUARY.

Mr. F. W. Acheson.	Mr. F. A. C. Mills.
Miss S. M. Anderson.	Miss K. P. McDonnell.
Mr. Hugh Cairns, B.Sc.	Miss H. Napier.
Mr. Frank Duffin.	Mr. John Smith, M.A.,
Mr. S. R. Howard.	LL.B.
Miss Isabella Maxwell.	Mr. J. J. Wall.

Two well attended excursions were held during the Session.

On 28th June the Section visited Moneygreer Bog, near Ballygowan, where a few small colonies of *Osmunda regalis* (Royal fern) were found.

REPORT OF BOTANICAL SECTION.

On 26th July the Botanic Gardens at Glasnevin, Dublin, were visited. Dr. R. Ll. Praeger met the party in Dublin, and at Glasnevin gave short talks on the various interesting collections in the gardens.

K. BOURKE, } *Hon.*
E. N. CARROTHERS, } *Secretaries.*

REPORT OF GEOLOGICAL SECTION.

There were two excursions during the Session.

The first was made on 31st May, 1941, when the old lead mines at Conlig were visited, in company with the Zoological Section.

For the second excursion, the Section paid a visit to the Geological Department of The Queen's University, Belfast.

The best thanks of the Section are owed to Mr. Davison who acted as conductor of the Geologists at Conlig and to Mr. Hartley who made the arrangements and acted as conductor at "Queen's."

J. K. CHARLESWORTH, } *Hon.*
W. J. WEATHERUP, } *Secretaries.*

REPORT OF JUNIOR DIVISION.

Despite the present conditions due to the War the Junior Division continues to increase and at the time of

making this report stands at 146. The fact that enrolment for membership keeps up proves that the Junior Division is fulfilling a useful need.

Two week-end excursions were made during the year, in June and August, when we visited the Slievnaman Hostel, and did good work in geology and bird study. Once again we have to thank Mr. and Mrs. Davison for their help in arranging these week-ends.

We also had excursions as follows:—

17th May	...	...	Malone to Ormeau.
20th May	...	...	Belfast Castle.
31st May	...	...	Colin Glen.
9th August	...	...	Hillsborough.
23rd August	...	...	Armagh.
4th October	...	...	Kilmood Old Church.

The Juniors were again responsible for exhibits at the Club Social Meeting on October 18th, and while not so numerous as previously, individual exhibits were up to standard.

On March 21st the Juniors held their own special *Conversazione*. Competitions in natural history interest were held and through the kindness of the Ministry of Information we enjoyed a film show which included some most interesting studies of wild life, especially the enlarged studies of insect-life.

To conclude, the year's work has been satisfactory. Everyone is interested, some sixty per cent. are keen on a particular branch of study, and of these all have shown a great improvement in scientific observation and are likely at some future date to prove useful members of the Club.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

BELFAST NATURALISTS' FIELD CLUB.

HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 1942. RECEIPTS AND PAYMENTS ON GENERAL ACCOUNT.

RECEIPTS.		PAYMENTS.	
Balance at credit of "General Account" at 31st March, 1941, viz.:-		Printing and Stationery ...	£33 1 7
With Northern Bank, Limited	£10 8 5	Postages ...	24 15 5
Subscriptions received :-		Incidentals, Secretary's Telephone Rental, Clerical Assistance and Petty Expenses ...	12 0 5
354 @ 6/- and 4 @ 3/-	£106 16 0		
Arrears paid up ...	8 8 0	Hive of Lecture Hall and Committee Room	£69 17 5
Paid in advance for 1942/43 ...	7 10 0	Lanternist's Fees ...	14 10 0
Entrance Fees, 10 @ 5/- ...	122 14 0	"I.N.J." Affiliation Fee, 1942 ...	6 0 0
Excursions Account (without charging printing or postages ...)	2 10 0	Subscription, The National Trust	3 0 0
Social Meeting Account (without charging printing or postages) ...	4 11 4	"Flora" Account :-	0 10 0
"Flora" Account :-		London Storage Charges, Insurance and Postages ...	2 5 4
Proceeds of Sales during year	1 4 4	Junior Division Expenses ...	7 13 2
Donations ...	2 6 11		£103 15 11
Club Badges sold ...	0 7 0	Balance at credit of "General Account" at 31st March, 1942, viz.:-	
Junior Division :-	0 4 0	With Northern Bank, Limited	43 12 1
Subscriptions ...	£3 0 0		
Donation ...	0 2 0		
	3 2 0		
	£147 8 0		£147 8 0

R. G. HENDERSON, Hon. Treasurer.

8th April, 1942.

Audited and found correct.

WM. P. CHANDLER, } Auditors.
ALFRED M. M'KISICK, }

10th April, 1942.

RECEIPTS AND PAYMENTS ON ACCOUNT OF "BELL-WELCH MEMORIAL FUND."

RECEIPTS.		PAYMENTS (None).	
	Interest.		Principal.
Balance at credit of Fund at 31st March, 1941 (£107 10s. 0d.)	... £5 15 4	Balance at credit of Fund at 31st March, 1942, viz. :—£110 3s. 6d. on deposit with Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Bell-Welch Memorial Fund"	£101 14 8
Interest credited by Belfast Savings Bank for year to 30th November, 1941	... .. 2 13 6	... ..	£8 8 10
	<u>£8 8 10</u>	... ..	<u>£8 8 10</u>
	£101 14 8		£101 14 8

R. G. HENDERSON, Hon. Treasurer.

8th April, 1942.

Audited and found correct.

WM. P. CHANDLER,
ALFRED M. M'KISICK

Auditors.

10th April, 1942.

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1943.
(EIGHTIETH YEAR)

SERIES II.
VOLUME X.



PART V.
1942-1943.

BELFAST NATURALISTS' FIELD CLUB.

EIGHTIETH YEAR, 1942—1943.

GENERAL COMMITTEE.

President

ROBERT G. HENDERSON, F.C.A.

Vice-President

E. N. CARROTHERS.

Hon. Treasurer

ROBERT G. HENDERSON, F.C.A., 17 Castle Place.

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Hon. Secretaries Botanical Section

MISS K. BOURKE, B.Sc.

Rev. W. R. MEGAW, B.A., M.R.I.A.

Hon. Secretaries Geological Section

Prof. J. KAYE CHARLESWORTH, D.Sc., M.R.I.A., F.G.S.

W. J. WEATHERUP, B.Sc.

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J. SKILLEN.

Hon. Secretaries Survey of Antiquities Committee

MRS. I. R. CROZIER.

E. ESTYN EVANS, M.A., D.Sc., F.S.A.

Hon. Secretary Junior Division

MISS FELICITY BOLTON.

Members of Committee

Retire 1943.

A. McI. CLELAND.

J. J. HARTLEY, M.Sc.

WM. SWEENEY.

Retire 1944.

A. H. DAVISON, F.R.S.A.I.

R. S. LEPPER, M.A., F.R.HIST.SOC.

MISS W. J. SAYERS, B.A.

Retire 1945.

H. S. BLACK.

DENIS RANKIN

GEO. C. REILLY.

Honorary Secretaries

JOSEPH SKILLEN,

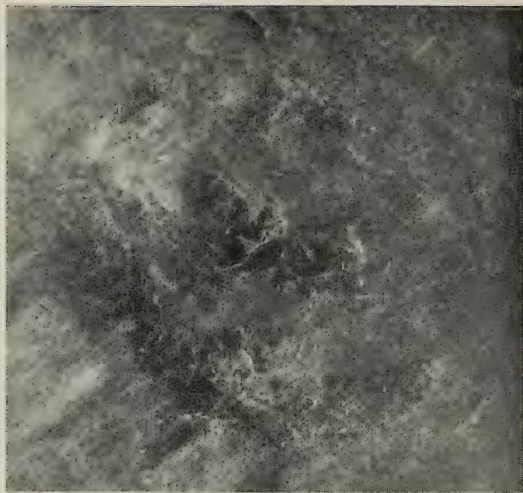
W. GRAHAM R. SKILLEN, } 25 Stranmillis Gardens.



Fig. 1.



Fig. 2.



Jelly Fish.

[Photo by J. S. Loughridge.

Fig. 1. Alive.
Weight=146.19 grms.

Fig. 2. Dried.
Weight=5.67 grms.

PROCEEDINGS.

SUMMER SESSION.

The following excursions were made during the Session, but owing to restrictions imposed by the War no reports are appended.

23rd May	...	Castle Upton and Templepatrick.
6th June	...	Portrush and Dunluce.
20th June	...	Sharvogue's Bog.
30th June	...	Giant's Ring.
4th July	...	Hillhall.
4th August	...	Botanic Gardens.
25th August	...	Skegoniel Brickworks.
12th September	...	Lyle Hill.
26th September	...	Kilmood and Florida Manor.

WINTER SESSION.

The authors of the various Papers, of which abstracts are given, are alone responsible for the views expressed therein.

All meetings were held in the Museum Building, and on Saturdays at 3.30 p.m.

SOCIAL MEETING.

Once again, owing to the continuance of the War, the Annual Conversazione was abandoned. In its place a Social Meeting was held on 17th October, at 2.30 p.m. At this meeting the Junior Division again arranged an excellent exhibition of the result of their efforts during the Summer Session. There was a large attendance. Tea was served at 4.30 p.m., and the meeting was on all hands acknowledged to have been a great success.

SOME NOTES ON COMPOSITAE.

The second meeting of the Winter Session was held on 14th November, when the President (R. G. Henderson, F.C.A.), delivered his Inaugural Address on above subject.

In his introductory remarks the President explained that his paper was addressed chiefly to any members of the Club who might not hitherto have actively participated in any particular section of the Club's work—in the hope that he might arouse their interest in Field Botany. He had chosen Compositae because so many of our more common flowers belong to this great Order, and because these common flowers possess interesting features which can be understood and appreciated by beginners.

The President then dealt with some of the difficulties commonly experienced by the adult beginner, and showed that these difficulties could be easily surmounted if the novice was willing to make some little effort to acquire a knowledge of elementary botany.

Mr. Henderson gave an outline of the distinguishing features of the Order of Compositae, and explained that the common daisy, *Bellis perennis*, although usually spoken of as "a flower," is in reality composed of approximately 250 separate flowers (known as florets), of which about 200 go to make up the central yellow disc, whilst the remaining 50 or thereabouts are the strap-like white florets frequently referred to as "the petals."

Having given some particulars as to the vastness of the Order of Compositae, which is stated to represent about ten per cent. of all flowering plants and to comprise about 10,000 separate species, he deplored the tendency to ignore the very common plants, simply because they are common.

The President then dealt in detail with the following species, and brought forward many interesting points connected with each of them. *Sonchus arvensis* (Corn Sowthistle), *Achillea Millefolium* (Yarrow), *Matricaria inodora* (Scentless Mayweed), *Tussilago Farfara* (Coltsfoot), *Senecio vulgaris* (Groundsel), *Taraxacum officinale* (Dandelion), and *Tragopogon pratensis* (Goat's beard).

The lecture was illustrated by slides, and the platform, through the kindness of one of the members, was decorated with some handsome specimens of Compositae.

THE WONDERS OF EGYPT.

The third meeting of the Winter Session was held on 5th December, when Mr. H. P. Swan, P.C., F.R.S.A.I., presented a most interesting paper on the above subject, illustrating it with many excellent lantern views.

(No Abstract).

SOME POPULATION PROBLEMS OF NORTHERN IRELAND.

The fourth meeting of the Winter Session was held on 30th January, when Mr. I. M. Mogay, M.A., read an interesting paper on above subject, illustrated by maps, diagrams, etc.

(No Abstract).

[**Note**—It had been originally arranged that at this meeting two papers should have been presented, the first by Mr. O. Davies, M.A., on "A Crannog in Co. Cavan, and its Structural Features," and the second by Dr. E. Estyn Evans, M.A., F.S.A., on "The Irish House." Owing to quite unexpected circumstances these papers were not forthcoming, and Mr. Mogay very kindly undertook to fill what would otherwise have been a gap in the Winter Session programme.]

QUESTIONS AND ANSWERS.

The fifth meeting of the Winter Session was held on 13th February, when about eighteen questions were put forward. These embraced queries in Archaeology, Geology, Physiology, Biology, Botany, etc. The following members dealt with the answers:—Miss W. J. Sayers, J. A. S. Stendall, Dr. J. S. Loughridge, Prof. J. K. Charlesworth, A. H. Davison, J. J. Hartley, Dr. E. E. Evans, and others.

REMINISCENCES: GEOLOGICAL AND OTHERWISE.

The sixth meeting of the Winter Session was held on 13th March, when Mr. A. M'I. Cleland dealt with the above subject.

He explained at the outset that most of his Reminiscences were drawn from his "Journals," dating from 1884 onwards, in which are recorded particulars of his work in many directions. He touched upon Geology, Botany, Archaeology, etc., etc., illustrating his remarks by many excellent lantern views, the majority of them from his own negatives.

ANNUAL MEETING.

The Annual Meeting was held on 17th April, the President (R. E. Henderson, F.C.A.), in the Chair. The following Reports were presented:—

ANNUAL REPORT.

This, the Eightieth Annual Report, is presented in attenuated form due to the national crisis through which we are passing. It will be understood that in these circumstances the activities of the Club have been more or less restricted.

At the beginning of last year we had 427 members on the register, and at the beginning of this year, 425, being a loss of only two in our membership—a very satisfactory condition of affairs.

Four of our affiliated Clubs are still flourishing, namely Londonderry, Route, Limavady, and Armagh Ramblers' Club; while two, Tyrone and Omagh, are in abeyance during the War.

Fifteen of our members are on active service, and the Committee wish them a safe return.

During the past year a series of nine successful Summer Excursions were held, though owing to the lack of transport choice of place was limited.

In lieu of the usual *Conversazione*, the Winter Session was opened with a Social Meeting, held on 17th October. The Junior Division had tabled a most creditable display of exhibits, and our thanks are due to Miss Bolton, Honorary Secretary, and the Junior Division Committee, for the unqualified success of the Social Meeting.

J. SKILLEN,	} <i>Hon.</i>
W. G. R. SKILLEN,	
	} <i>Secretaries.</i>

OBITUARY.

Miss M. Gardener, M.A.	Wm. Keiller.
Boyd Harris, B.Comm.Sc.	Mrs. M. R. Kertland.
Miss M. L. Lynn.	

REPORT OF BOTANICAL SECTION.

Two Botanical Section excursions were held during 1942, and were well attended.

Whitehead and Blackhead were visited on 13th June. *Picris echioides* was not seen; but three months later two plants were reported in flower at the place we searched.

The visit to Ballylumford and Brown's Bay, Islandmagee, on 1st August, was a joint excursion with the Geological Section. A special look-out kept for *Picris echioides* was unrewarded. *Juncus inflexus* was re-found at the south side of the bay. This rush has not been noted in Islandmagee since Templeton found it there in 1810. Before returning to Belfast, some members saw *Lepidium Draba* on the railway bank at Larne Harbour.

In addition to the records for the season included in Dr. Praeger's list in "I.N.J.," September, 1942, the following by Mr. J. M'K. Moon may be noted:—

Allium carinatum, near Redburn, Holywood.

Anacamptis pyramidalis, on spoil banks at Maghera-morne and on railway bank near Monkstown.

MISS K. BOURKE, B.SC.,	} Hon. Secretaries.
E. N. CARROTHERS,	

REPORT OF GEOLOGICAL SECTION.

There were three Summer Excursions, as follows:—

Saturday, 27th June—Scrabo Quarries.

Saturday, 1st August—Ballylumford and Brown's Bay.

Saturday, 22nd August—Larne Harbour.

W. J. WEATHERUP,	} Hon. Secretaries.
J. K. CHARLESWORTH,	

REPORT OF ARCHAEOLOGICAL SECTION.

Owing to the difficulty of hiring busses only one excursion was held during the past Summer Session. This was to Dunmurry, on Saturday, 8th August, Dr. S. R. Hunter acting as conductor.

Through the kindness of the Rt. Hon. J. Milne Barbour, the grounds of Conway House were visited, and two American Indian totem poles were examined with great interest.

By the kind permission of Mrs. T. D. Paul, the grounds and gardens of Dunmurry House were also visited. A Norman motte and bailey is here carefully preserved, as well as an Irish rath or dun, from which Dunmurry takes its name.

The excursion terminated by a visit to Derriaghy Parish Church, where some ancient records are preserved. The Rector kindly entertained the members to afternoon tea at the Rectory.

A. A. CAMPBELL,	} <i>Hon.</i> <i>Secretaries.</i>
J. SKILLEN,	

REPORT OF JUNIOR DIVISION.

The Junior Division continues to progress satisfactorily. The increase in new members is most encouraging, being the highest we have had for many years. The membership of the Division now stands at 170, an increase of 24 on last year.

Once again the Junior Division was entrusted with the provision of exhibits at the Social Meeting. This year the exhibits shewed an improved regard for scientific record, and ranged from a display showing the usefulness of Botany in War-time, to Archaeology. We were pleased to welcome a fine geological display from "Inst." Natural History Society, and we appreciate very much Mr. Cleland's kindness in lending us some of his grand photographic studies.

[**Note**—All the excursions, nineteen in number, were well attended and proved most enjoyable and instructive.]

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

BELFAST NATURALISTS' FIELD CLUB

HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 1943.

RECEIPTS AND PAYMENTS ON GENERAL ACCOUNT.

RECEIPTS.			PAYMENTS.		
Balance at Credit of "General Account" at 31st March, 1942, viz.:—			Printing and Stationery ...	£24 11 2	
With Northern Bank, Limited	...	£43 12 1	Postages	...	26 17 7
Subscriptions received:—			Incidentals, Secretary's Expenses and Telephone, Clerical Assistance and Petty Expenses	...	26 12 6
343 @ 6/- and 5 @ 3/-	...	£103 13 0			
Arrears paid up	...	19 4 0			
Paid in advance for 1943/44	...	3 18 0			
Entrance Fees, 19 @ 5/-	...	126 15 0	Hire of Lecture Hall and Committee Room	...	£78 1 3
Excursion Account (without charging printing or postages)	...	4 15 0	Lanternist's Fees	...	14 10 0
Social Meeting (proceeds thereof)	...	5 1 0	"I.N.J." Affiliation Fee, 1943	...	5 0 0
"Flora" Account:—	...	1 13 0	Subscription, The National Trust	...	3 0 0
Proceeds of Sales during year	...	6 0 11	"Flora" Account:—	...	0 10 0
Donation, Mr. C. R. Nodder...	...	2 2 0	London Storage Charges, Insurance and Postages	...	2 9 9
Club Badges Sold	...	0 8 0	Junior Division Expenses	...	14 9 1
Junior Division: Subscriptions	...	5 6 6			
			Balance at Credit of General Account at 31st March, 1943, viz.:—		£118 0 1
			With Northern Bank, Limited	...	77 13 5
					£195 13 6

R. G. HENDERSON, Hon. Treasurer.
5th April, 1943.

Audited and found correct.
ALFRED M. M'KISACK, } Auditors.
WM. P. CHANDLER, }

6th April, 1943.

RECEIPTS AND PAYMENTS ON ACCOUNT OF "BELL-WELCH MEMORIAL FUND."

RECEIPTS.

	Interest.	Principal.
Balance at Credit of Fund at 31st March, 1942 (£110. 3s. 6d.) ...	£8	8 10 £101 14 8
Interest credited by Belfast Savings Bank for Year to 20th Nov., 1942 ...	2 15 0	—
	<hr/>	<hr/>
	£11	3 10 £101 14 8

PAYMENTS (None)

Balance at Credit of Fund at 31st March, 1943, viz., (£112. 0s. 6d. on Deposit with Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Bell-Welch Memorial Fund")

...	£11	3 10 £101 14 8
...	<hr/>	<hr/>
...	£11	3 10 £101 14 8

Interest, Principal.

142

R. G. HENDERSON, Hon. Treasurer.

5th April, 1943.

Audited and found correct.

ALFRED M. M'KISACK, }
WM. P. CHANDLER, } Auditors.

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1944.
(EIGHTY-FIRST YEAR)

SERIES II.
VOLUME X.



PART VI.
1943-1944.

BELFAST NATURALISTS' FIELD CLUB.

EIGHTY-FIRST YEAR, 1943—1944.

GENERAL COMMITTEE.

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Vice-President

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Members of Committee

Retire 1944.

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R. S. LEPPER, M.A., F.R.HIST.SOC.

MISS W. J. SAYERS, B.A.

Retire 1945.

DENIS RANKIN.

GEO. C. REILLY.

H. S. BLACK

Retire 1946.

W. P. CHANDLER.

REV. W. R. MEGAW, B.A., M.R.I.A.

MRS. WINIFRID NODDER.

Honorary Secretaries

JOSEPH SKILLEN

W. GRAHAM R. SKILLEN

} 25 Stranmillis Gardens





Later Stages of Marsh Building, Comber Estuary.

[Photo by A.M.T.C.]

PROCEEDINGS.

SUMMER SESSION.

The following Excursions were made during the Session, but owing to Wartime restrictions no reports are appended.

May 22nd	...	Benevenagh.
June 5th	...	Ardglass.
June 26th	...	Comber Estuary.
June 29th	...	Gilnahirk.
July 3rd	...	Massereene Deerpark.
August 3rd	...	Black Mountain.
August 24th	...	Old Belfast.
September 11th	...	Armagh City.
September 25th	...	Glenoe.

WINTER SESSION.

The authors of the various Papers, of which abstracts are given, are alone responsible for the views expressed therein.

All Meetings were held in the Museum Building and on Saturdays at 3 p.m.

SOCIAL MEETING.

The Session was opened by a Social Meeting held on 23rd October, 1943, at 2.30 p.m., at which the Junior Division again arranged an Exhibition of the excellent results of their efforts during the Summer Session. The attendance was very encouraging, Tea was served at 4.30 p.m., and the meeting was generally acknowledged to have been a great success.

ULSTER MAMMALS.

The second meeting was held on 13th November, when Mr. J. A. S. Stendall, M.R.I.A. read a paper on the above subject.

Following introductory remarks of mammal characteristics and adaptation to environment the lecturer spoke of the disparity in numbers of Irish species as compared with Great Britain and the probable reasons. A plea was made for more work to be done among the Bats, a poorly represented family in Ulster and in Ireland as a whole. Each mammal occurring in Ulster with the adjoining sea was discussed and illustrated by means of lantern slides.

PLANT NAMES.

The third meeting was held on 11th December, when the President (Mr. E. N. Carrothers) presented his Inaugural

Address, taking the above as his subject. In the course of his remarks the President said:

All peoples have names for plants, but these are naturally restricted (especially with primitive peoples) to the more conspicuous members of the flora. It is not likely that in the earliest times any great number of plants had been carefully distinguished beyond those that were recognized as useful—food, medicinal, and fibre bearing plants, and fruit and timber trees. Plants recognized as harmful—weeds in crops, and those plants found to be poisonous—would also have names bestowed upon them. In the case of plants neither useful nor harmful, names would be given to those with showy flowers or something striking either in their growth or in their habitat. The remainder of the native flora would be lumped into weeds, herbs, bushes or trees.

Take some of the commonest names in use: Oak, Beech, Birch, Hawthorn, Sloe, Mistletoe, Apple, Garlic, Hazel, Oat, Nettle, Thistle, Dock, Clover, Ash, Aspen, Barley, Bramble, Daisy and the word "wort." These are all Anglo-Saxon names and are all well known plants. So are those with Latin or Greek names, or French names derived from Latin: Anemone, Angelica, Aster, Celandine, Dandelion, Fumitory, Hyacinth, Lily, Pimpernel, Poplar, Scabious, Elm, Sycamore, Holly, Plum, Pear, Cherry.

Now most of these plants are native, or at least have been for well over 1,000 years. How is it then that some have names derived from Anglo-Saxon and some from Latin? It may be explained this way, without going into details:—The tribes which descended upon Britain were already a civilized people before they entered Europe. They must have come from a colder country, for while their names for plants include the Oak, Birch, Hawthorn and Sloe, trees that extend far into Northern Asia, they do not comprise the Elm, Chestnut, Sycamore and Holly, for which they adopted Latin names. This is a proof that at the time they came into contact with the Romans on the lower Rhine, they were not the settled inhabitants of the country they were then occupying but rather conquerors coming from a country where the Elm, Chestnut, Sycamore and Holly were unknown.

The next names to be mentioned are those that have been in use for about 400 years. These are very numerous and were applied by the Herbalists. They are mostly introduced from abroad, for in the study of plants the continental nations took the lead, whilst the English

herbalists did little more than try to ascertain which plants were meant and apply the names, usually in translation, to English plants.

The Herbalists passed on such information as:—That hawks used Hawkweed for clearing their eyes; that with Celandine “dams restore sight to their young ones when their eyes be put out”; that Fumitory (*fumes terrae*) is produced without seed from vapours rising from the earth; and that Devil’s Bit (*Scabious*) is so called because the root was much longer until the Devil bit away the rest for spite so that it grows no more to this day. It seems the devil had been using the root with much success, but the power to use it effectively was taken from him.

Many of the Herbalists’ names are in accordance with the so-called “doctrine of signatures.” This was a system for discovering the medicinal uses of a plant from something in its external appearance that resembled the disease it would cure. It proceeded in the belief that God had in this manner indicated its especial virtues.

In 1656 William Cole writes, in his “Art of Simpling”: “Though Sin and Satan have plunged mankind into an ocean of infirmities, yet the mercy of God which is over all His works, maketh grass to grow upon the mountains, and herbs for the use of men, and hath not only stamped upon them a distinct form, but also given them particular signatures whereby a man may read *even in legible characters* the use of them.”

Plant names have been used in tracing the places of origin of cultivated plants. Not exclusively, for in addition to the help given by philology, the evidence supplied by botany, archaeology and history is also used. The common names often help towards tracing the history of a species, but caution is necessary, for there are plenty of cases in which the name is based on an error, or is vague or doubtful. Take the Jerusalem artichoke (*Helianthus tuberosus*) which does not come from Jerusalem, but from North America, and is no artichoke. (“Jerusalem” is from an Italian word meaning “turn-sun,” in fact a sun flower, to which genus this plant belongs).

A common name has sometimes been transferred from one plant to another. The sweet potato (*Convolvulus Batata*) was confused with the ordinary potato (*Solanum tuberosum*) and has caused the latter to be called potato in English. If modern peoples who have good facilities for verifying names in books, make mistakes, it is probable that ancient nations have also made many errors.

Scholars may display great learning in explaining the philological origin of a name, or its modifications in derived languages, but it is left to botanists to point out popular errors and absurdities. The double or compound names are the most doubtful. They may consist of two mistakes, one in the root or principal name, the other in the supplementary name which usually indicates geographical origin or some comparison with other species. Examples of this are New Zealand Flax and Cape Gooseberry or Chinese Lantern plant. The shorter a name is the better it merits consideration in questions of origin or antiquity, for it is often by the succession of years, the migrations of peoples, and the transport of plants that the erroneous additions take place.

The diversity of names for the same species may spring from several causes. As a rule it indicates an early existence in different countries, but it may also arise from a mixture of races—or from names of varieties which take the place of the original name.

When it is desired to make use of common names to gather from them certain probabilities regarding the place of origin of species it is of course necessary to consult dictionaries and the descriptions of philologists, but we must take into account the chances of errors in these since they are the work of men who are neither cultivators nor botanists, and mistakes may have been made in the application of a name to a species. Botanists are in many cases forced to doubt the common names attributed to plants by travellers, historians and philologists.

The case of the name Potato illustrates this in part. Suppose it were considered purely as a name—then on derivation alone it *would be found to refer to a plant* that came from a much warmer country and could not be grown here.

Let us now turn again to the names we commonly use. The case against them lies largely in the multiplicity of names for the same plant. A book like Britten and Holland's great Dictionary of English Plant Names takes three large volumes to give the local names of the plants of Britain. Many of the names are obsolete, or at least seldom used. Here are some names of the *Marquerite still in use*:—Ox-eye Daisy, White Bothen, Bozzom, Cow's Eyes, Big Daisy, Bull D., Butter D., Devil's D., Dun D., Midsummer D., Moon D., Horse D., London D., Dunder's D., Field D., Great D., Poor-land D., Thunder D., Daisy Goldins, Large Dicky D., Dog Flower, Espibawn (this the writer heard

from a Broughshane man), Girt Ox Eye, White Gold, Goode, Horse Gowan, Large Gowan, White Gowan, White Gull, Horse-pennies, Magweed, Maudlinwort, Mayweed, Moon, Moonflower, Moon-pennies, Dutch Morgan, Poverty-weed, etc. So one cannot say everyone knows it is a *Dog Daisy*!

Such names are very local, as many in the long list just written. Some of our local names are Benweed for Ragwort, Gilgowan for Corn-marigold, Saggon for Yellow Iris, Flower of Dunluce for large blue *Geranium pratense*, Nedcullion for Wood anemone. Little is known of the distribution of these names and here is a subject for these days of regional surveys. During this summer the writer saw in a cottage garden in Mid-Armagh a large lily quite like the orange lily (that is *Lilium bulbiferum*), but it had brilliant red flowers. The proud owner said it was called "The Blood of Boyne." This name was confirmed at another place half a mile away.

During the last century an attempt was made by Ruskin and others to coin English names for introduced species coming into general cultivation and to supply common names to many native plants that had so far not acquired them. Such names as *Rockfoil* for Saxifrage and *Rockspray* for *Cotoneaster* were concocted. But how adjectives for some hundreds of species were to be supplied is not known. Ruskin would have been hard pressed had he lived to see the torrent of introductions from Asia which broke loose at the beginning of the century. His fancy names never gained currency. The movement so far as other innovators were concerned died, destroyed by its own enthusiasts. One critic quoted an imaginary "Mrs. Bradshaw's Blue Bedding Viper's Bugloss," as a possible and extreme product of the movement! About 1850 another innovator, a Professor Henslow (Rev. J. S. Henslow, Professor of Botany in the University of Cambridge), invented English names for all British plants. These were for the use of village school children. (Even Bentham and Hooker aided and abetted him). Many of his names will be seen in the Flora of the N.E. of Ireland. We have *Intermediate Winter Grass*, *Narrow-podded Marsh-cress*, *Large flowered Mouse-car* (chickweed would have completed it), *Narrow-leaved White Helleborine*. Is *Twisted-podded Whillow-grass* easier than *Draba incana*? Why there should be any difficulty about Latin names is difficult to see. We all use "hard" names for many of our garden plants:—Aster, Begonia, Clematis, Dahlia,

Gladiolus, Narcissus. Even names like Chrysanthemum, Aspidistra, and Rhododendron present no difficulty.

It should be understood that sometimes Latin names are not correct botanically. The scarlet bedding plants we call Geraniums ceased to be Geraniums in 1787, when those with irregular flowers were separated as Pelargoniums from those with regular flowers. Indeed Geranium has become the common name for certain Pelargoniums. There is confusion between Syringa and Lilac, the botanical name for Syringa being Philadelphica and Lilac is Syringa.

So much for common names. Let us now consider the scientific names. The story of these is to some extent the history of Botany.

Two writers who regarded plants primarily as sources of *materia medica* follow:—Dioscorides circa A.D. 64 and Galen in the 2nd. century. Dioscorides compiled what must have been the most assiduously studied textbook ever written, for over 16 centuries its authority was unquestioned. After Galen there is an absolute blank, and for more than 14 centuries botany has no history. The stock of knowledge was kept alive by the Arabs and Monastic writers.

In the 15th century and with the invention of printing there was a very active period of book production. Books of this period had usually a previous career in manuscript, and are often far older as regards the matter which they contain than the date of their publication might suggest. The herbals printed at this time are still under the influence of the classical authors who dominated European Botany completely until the 16th century. The vague and random way of applying the same name to very different plants was frequent in these early herbals, and makes it difficult to discover the original meanings of the names used. Numberless blunders arose while the art of describing a species was yet unknown. Learned recluses, instead of studying nature in the fields, were perplexing themselves with a vain attempt to find in the North of Europe the Mediterranean plants of Theophrastus and Dioscorides.

With the 16th century other influences began to make themselves felt. This is the century of fine herbals with woodcuts done from living plants.

Here we meet with Brunfels (1530), Fuchs (1542), and Bock (1546). (Fuchs is commemorated in the genus Fuchsia). Bock re-wrote Dioscorides and added more or less accurate woodcuts to the text, and because he could not afford the expensive illustrations of his two wealthy contemporaries tried to describe with greater care the wild

flowers growing around him. He alone of the three is entitled to the distinction of having gone direct to nature for his information.

The earliest and best descriptions of plants at this time are by Cordus, who described carefully about 500 species, which he studied direct from nature. His book was published in 1561, 17 years after his death. It was unfortunately illustrated with the inferior woodcuts prepared for Bock's books, with the result that plants described for the first time by Cordus were confused with those discovered and figured by Bock.

In the 30 or 40 years during which these "German Fathers" flourished we have only one name of any consequence in English botany, William Turner. It was not until the publication of his herbal from 1551-1568 that there was any possibility of ascertaining through *any English work*, which of several species or indeed which of several genera might be meant by any given name. His book is illustrated by woodcuts borrowed from Fuchs. Turner is the father of English botany. He set his successors the example of keeping as close as possible to the Flemish and German as languages more akin to English. His two principal successors are Lyte (1578) and Gerarde (1597), who translated freely from Dodonaeus, a Flemish Herbalist. The later English Herbals are little else than transcripts of Turner, Lyte and Gerarde. Many of our plant names, as mentioned earlier, are English translations of the names appearing in the Flemish and German Herbals. Some 2,000 plants are described in the 16th century Herbals.

Early in the 17th century two brothers appeared on the botanical stage, John and Kaspar Bauhin, Frenchmen. John Bauhin's book described 5,000 species and had over 3,000 woodcuts. Kaspar Bauhin described about 6,000 plants under a simple nomenclature which is very largely binomial, consisting of only two names to each plant. He also included the names used by earlier botanists. (He made little or no progress in grouping genera into orders or classes).

As the 17th century proceeds there appears *Robert Morison*, Professor of Botany at Oxford, the first to draw up a systematic monograph of a natural order. (*Umbelliferae* 1672), and *John Ray* to whom we owe the familiar names Monocotyledons and Dicotyledons as terms for the two great divisions into which flowering plants are separated. His *Historia Plantarum* contains descriptions

of 18,000 species. A volume he published in 1690 may be regarded as the first British Flora.

At last we come to the 18th century, beginning with Linnaeus, born in 1707. His services to Botany are unique. The large number of specimens of plants, ever increasing through the collections of travellers and naturalists, was in a confused state. There was great ambiguity owing to the lack of a methodical way of arranging and naming them. They were known by verbose descriptions and local names. No scheme had yet been devised for securing uniformity in applying names to them. The same plant had different names in the different sections of a country, and often different plants had the same name. In different countries also their names were greatly diversified. It is difficult now to realise the confusion which existed in the 17th and 18th centuries over plant names. New plants were constantly being found for which names were required, but every botanist pursued his own method. There was no court of appeal. What was especially needed was some great organizing mind to catalogue the plants in a systematic way and give to botany a common language.

The students of Linnaeus, like their master, were mainly collectors and classifiers. In their zeal for naming and classifying, the higher goal of investigation, knowledge of the nature of plants, was lost sight of. Linnaeus was fully aware of the artificial nature of his classification, which placed plants into classes mainly on the number of stamens in the flower and into orders according to the number of pistils. He never regarded his 24 classes as real and natural divisions of the vegetable kingdom. The system was constructed for convenience of reference and identification of species. He knew that a natural system founded on the true affinities of plants as indicated by the structural characters was the highest aim of botanical endeavour. He worked for some time on a natural system, but did not proceed very far with it. His artificial or sexual system had a longer vogue in England than on the continent. The subsequent rise and development of our present natural system is outside the scope of this paper.

Linnaeus in his "*Critica Botanica*," a work which was translated into English only a few years ago, explains his reasons for introducing a new system of nomenclature, and makes many recommendations. This work is an elaboration of those aphorisms which deal with nomenclature, taken from his "*Fundamenta Botanica*" (1736). The first aphorism on nomenclature reads.—"The classification

being made let nomenclature, the other of the two foundations of Botany, forthwith bestow names." In the preface he writes:—"To you, my dearly beloved botanists, I submit my rules, the rules which I have laid down for myself. If they seem to you worthy, let them also be used by you."

The Rules of Nomenclature elaborated in this book resemble to some extent the International Rules of Botanical Nomenclature which are our modern code. Indeed it may be said that Linnaeus conceived many of the fundamental principles.

On the subject of names Linnaeus says if anyone should distinguish precisely all the plants in the world according to the character stamped on them, and yet give them no names, he would be keeping his learning to himself. A rustic knows plants and so does a brute beast, but neither can make anyone else the wiser.

He insists that only real botanists should assign names to plants, and not meddling persons who are indifferent to genera. Therefore no one can assign names to plants unless he understands the genera and the known species. All names are rejected unless they have been invented by the Systematists or confirmed by them. As examples of some names used by the ancients and revived before the science of botany had been developed he gives:—

Morsus Diaboli—Scabiosa (Devil's Bit).

Morsus Ranae—Hydrocharis (Frog Bit).

Vicera Diaboli }
Herba Inferni } Cuscuta (Dodder).

Hybrid names compounded of Latin and Greek are not to be recognised. That a name with one or two syllables prefixed to make it denote another genus are not to be admitted. To the last, he remarks that names beginning with Pseudo have been dropped for some time past by the more critical botanists lest anyone should dub them Pseudo-Botanists or Pseudo-Baptists. Generic names ending in *oides*, meaning like, are to be banished. This termination had been a safe refuge for the idle botanist, who when he saw a plant belonging to a new genus used the termination with the nearest genus he knew. It is no wonder Linnaeus remarks that a botanist who used it frequently had been called a "Botanicoides."

Names formed to preserve the memory of a Botanist who deserves well of the science he retained as a religious duty. He anticipated opposition to this from those who

would argue that name and plant are two ideas which should be so closely united that the plant ought to lend a hand to the name, and the name in its turn to the plant, but since there is no connection between botanist and plant such naming is bad. His reply to this was that anyone with a knowledge of the history of letters will easily discover a link by which to connect the commemorative name with the plant. In the examples he gives he lets his imagination and whimsical humour run riot. It will be seen that some of the worthies commemorated do not receive compliments.

Bauhinia has two-lobed leaves or two, as it were, growing from the same base, being called after the noble pair of brothers Bauhin. *Rivinia* denotes an evergreen, ever-flowering, ever-fruited tree, being called after Rivinus, the most accomplished and prolific botanist of his time. *Commelina* has flowers with three petals, two of which are showy, while the third is not conspicuous, from the two botanists called Commelin, for the third died before accomplishing anything in Botany. *Gronovia* is a climbing plant which grasps all other plants, being called after a man who had few rivals as a "collector" of plants. *Hernandia* is an American tree with the handsomest leaves of any, and less conspicuous flowers, from a botanist who had supreme good fortune, and who was highly paid to investigate the Natural History of America; would that the fruits of his labours had corresponded to the expenditure! *Linnaea* was named by the celebrated Gronovius and is a plant of Lapland, lowly, insignificant, disregarded, flowering but for a brief space, from Linnaeus who resembles it.

The usefulness of the binomial system was so obvious that it was adopted in all countries. A new source of trouble, however, arose in that great age of travel and exploration when new plants were continually being discovered and named by botanists in many different places all over the world. Often the same plant would be given different names by different workers ignorant of each others labours. (This was inevitable when the plant had more than one discoverer). There were no generally accepted rules governing nomenclature. Linnaeus' rules were not always observed and in any case they did not provide for all the difficulties that arose. Each author was a law unto himself and plant names were in a chaotic state. The great French botanist, Alphonse de Candolle, was entrusted with the task of drawing up a code of rules which could be discussed at an International Botanical Congress to be held at Paris in 1867. The most important contribution made

at this Congress was the recognition of the *law of priority*, that is:—the oldest name that could be definitely assigned to a plant must be considered the correct one.

When the International Botanical Congress was held at Vienna in 1905 it was finally agreed that only names published in Linnaeus' "*Species Plantarum*," or subsequently, should count; thus the year 1753 was made the starting point. One difficulty was still left, even using the date 1753, a certain number of plant names in general use would have to be abandoned.

The Vienna Code laid down in 1905 was adopted by the majority of botanists. The International Botanical Congress should meet every 5 years:—Brussels, 1910; Cambridge, 1930 (first since last War); Amsterdam 1935. Each successful Congress has led to greater agreement. In their present form the rules consist of 74 Articles together with 50 Recommendations.

A vast number of the 300,000 known species are still under investigation, so that changes in names will take place for a long time to come.

The change in a name is not always due to the law of priority. It may be due to research which calls for a revision of the conception of a particular genus. The genus may be split into several new genera, or on the other hand several genera may be lumped together.

A short account of the names of the common garden shrub known as *japonica* will explain how changes in names come about. *Japonica* by the way is the very curious example of a specific name becoming a common name. There are many plants with the same specific name. The shrub was formerly known to botanists as *Pyrus japonica* and to gardeners as *Cydonia japonica*.

Before Linnaeus' time Tournefort classified *pears*, *apples* and *quinces* as *Pyrus*, *Malus* and *Cydonia*. Linnaeus saw no sufficient reason for this and made them all *Pyrus*. About 100 years later Lindley put the japonese quinces into a new genus: *Chaenomeles*. Later Bentham and Hooker, apparently on the ground that a sufficient case had not been established for the change, continued Linnaeus name *Pyrus*. More complete work has now been done and Lindley's name *Chaenomeles* has been revived. All along gardeners stuck to *Cydonia*. The successive generic names have been *Cydonia*, *Pyrus* and *Chaenomeles*.

But *Pyrus japonica* did not become *Chaenomeles Japonica*. It would, if there had not been other complications, because when a plant is transferred from one genus

to another it retains its specific name (provided there is not already a plant of that name in the genus). The reason the specific name *japonica* had to be changed is a little more complicated.

The history is this:—

Thunberg described a shrub he called *Pyrus japonica* in 1784.

Sims described a shrub he called *Pyrus japonica* in 1803.

Loiseleur described a shrub he called *Cydonia lagenaria* in 1813.

Masters described a shrub he called *Pyrus Maulei* in 1869.

These are the four names concerned in the story, and they refer to two distinct species. It was recently discovered that Thunberg's and Masters' were the same shrub. Therefore Masters' name is banished and his *Pyrus Maulei* becomes *Pyrus japonica*. (or since a new generic name has been approved) *Chaenomeles japonica*. Sims was the first to describe the commoner shrub, but as he gave it a name already used by an earlier botanist his name is not valid. It must be passed over and the next oldest name adopted. This is Loiseleur's *Cydonia Lagenari*, and this with the newly approved generic name makes our shrub *Chaenomeles lagenaria*—so we must call it.

Space will not allow the writer to acknowledge the many sources from which he has tapped information. But in closing he may quote, with amendments for the occasion, something written by William Turner, the Father of British Botany:—"I grant that I have gathered much of so many writers, that I offer unto you a heap of other men's labours, and little of mine own, but if the honey that the bees gather out of so many flowers growing in other men's meadows may justly be called the bee's honey, so I may call what I have learned and gathered of many good authors—mine."

MONASTICISM IN MEDIEVAL IRELAND.

The fourth meeting was held on 11th December, when Mr. J. C. Beckett, M.A., gave an address on above subject, to an appreciative audience, of which an abstract follows.

Christian monasticism probably began in Egypt, where thousands of hermits, living in their separate cells, adopted the practice of common worship. The system developed and spread and always there was the tendency for the individual to become more and more completely merged in the community. At the same time general uniformity was

being established, in the east by the rule of St. Basil, in the west by that of St. Benedict.

The comparative isolation of Ireland during the Dark Ages not only delayed the introduction of the Benedictine rule but also led to the growth of a distinct type of Irish monasticism, though it is hardly accurate to speak of a distinct Irish rule. Irish monks retained something of the eremitic character of the early Egyptian monks. They moved with some freedom from one monastery to another. They were not completely cut off from parochial work. Their life was more ascetic than that of the original Benedictines, with whom the early practice of 'mortification,' retained in full force by the Irish monks, was replaced by the milder 'self-renunciation.' The chief characteristic of the Irish system was individual sanctity, of the Benedictine, active corporate unity. It was not unnatural that to Irish churchmen of the twelfth century, faced with political and ecclesiastical disorder, this unity and power which it gave seemed essential to the reform of the church. Malachy, the chief of these reformers, established at Mellifont in 1144 an abbey modelled on Cluny, which had become, under his friend St. Bernard, the main centre of the Cistercian reform of the Benedictine rule.

The influence of Mellifont spread rapidly and other houses were founded. The connection of these houses with England and with Europe made it natural that they should welcome Henry II under whose government they hoped for a general reform of the Irish Church. The Anglo-Normans certainly regarded the European religious orders in Ireland as their allies, and within a few years they established houses not only of Cistercians but also of the Knights of St. John, of the Knights Templars and of Augustinian Canons. The remark of Giraldus Cambrensis that they did so at the expense of the cathedral and parochial clergy may bring in question their generosity, but only strengthens the contention that it was from the Regulars that they expected to gain support. This is further borne out by the efforts of the English government in Ireland, during the rest of the middle ages, to exclude Irishmen from monasteries on territory controlled by the English. This exclusion was explicitly required by the statute of Kilkenny in 1366, but almost fifty years earlier it had been part of the 'Remonstrance of the Irish princes' presented to Pope John XXII.

The lack of harmony between the two nations in ecclesiastical affairs is further illustrated in the history of

the Franciscan order in Ireland. At first this order was mainly confined to Anglo-Irish territory; but the number of Irish members increased and disputes between English and Irish became so bitter (and even deadly) that in 1325 the General Chapter had to consider reorganizing the English and Irish houses separately.

Even this brief survey of a vast and as yet only partially explored subject may help to illustrate two important points. The political and racial disunity of medieval Ireland, which makes it difficult to conceive of Irish history during the middle ages as a whole, or, indeed, as anything more than the separate histories of a group of provinces, penetrates also the ecclesiastical history of the country. Again, the English government in its efforts first to occupy and then to hold Ireland enlisted every ally it could and of these allies the monastic orders were neither the least willing nor the least useful.

THE PLUVIAL PERIOD.

The fifth meeting was held on 5th February, when Professor J. K. Charlesworth, D.Sc., M.I.R.A., dealt with the above subject in a most interesting manner.

(No abstract).

THE BRAINS TRUST.

The sixth meeting was held on 26th February, when a good number of members attended. About 30 questions were asked and answered, some of the answers leading to spirited discussion.

"THE MAKING OF THE IRISH FAUNA AND FLORA."

The seventh meeting was held on 11th March, when Dr. R. Ll. Praeger, D.Sc., M.R.I.A., dealt with the above subject.

In the course of his remarks Dr. Praeger said he had been asked to contribute a volume on the "Natural History of Ireland" to the "New Naturalist" series, and the exploration to which it had led as regards many groups of Irish animals and plants had given him a number of new conceptions as to the extent, nature, and inter-relations of the fauna and flora. It did not appear logical to treat of animals and plants separately, as is done in almost all books; they form a single great entity, and each casts much light on problems connected with the other.

He reviewed the sources of our present knowledge, mentioning especially the publications arising from the work of the Fisheries Branch, the Clare Island Survey, and the output due to the Fauna and Flora Committee of the Royal Irish Academy in recent times; these together

have trebled or quadrupled the known total fauna and flora of Ireland.

He discussed the meaning of the word "Irish" as applied to plants and animals and pointed out how, as regards marine organisms, Irish territory is defined in a purely artificial way, since the sea has no natural boundary. Many Irish animals are also subject to no natural fixed limits, owing to seasonal or occasional mass migration.

He pointed out that in times geologically recent Ireland was connected, like Britain, with the Continent, and that a large proportion of the fauna and flora came over land surfaces; thus replenishing Ireland after the very serious reductions that must have resulted from the cold of the Glacial Period.

The main sources of our knowledge of the immediate predecessors of our present population were reviewed—cave deposits which formed the mainstay of knowledge of the mammals, crannogs for birds, etc., and bogs and silts for plants.

The method of pollen-analysis was explained, by means of which knowledge is being gained of the succession of past floras.

A brief review of present populations, animal and vegetable, was given, and their extent and distribution discussed, including the interesting Lusitanian, Mediterranean, American and Arctic elements. The influence of westerly winds and of south-westerly currents in importing alien forms of life into Ireland—some seasonal, some irregular, some ephemeral, some permanent, was also considered. And in conclusion the future of our fauna was touched upon, on the basis of our knowledge of the past and of the present.

ANNUAL MEETING.

The Annual meeting was held, in the Museum Building, on Saturday, 15th April, when a good number of members attended. The following Reports were presented.

ANNUAL REPORT.

The Committee is pleased to report that, notwithstanding the War, the work of the Club has been carried on in full vitality. The year started with a total of 425 members, out of this there were 13 resignations, 4 deaths and 5 names struck off the roll for non-payment of subscriptions. Opposite this 30 new members were elected and 4 juniors were transferred, making a total of 437, an increase of 12 members.

During the Summer Session 9 excursions were held. Good weather, proverbial with the Club, was on the whole up to tradition, the attendances being very satisfactory.

The Winter Session was opened by a Social Meeting, coupled with a display of exhibits by the Junior Section. This function was most successful and well attended. Full credit for this is due to Miss F. Bolton (Hon. Secretary of the Junior Section) and her energetic Committee.

The attendances at the Winter Session lectures was gratifying and interesting discussions followed.

Regarding the War it should be recorded that 16 members are serving in the forces and it is hoped that in the near future, "when the war drums throb no longer," they will all return to their homes safely.

OBITUARY.

J. V. Campbell.
N. E. Dunn.

T. J. Johnston.
Kenneth MacRea.

REPORT OF GEOLOGICAL SECTION.

Two Geological Section excursions were held during the Session, both conducted by J. J. Hartley, one to Barney's Point, Islandmagee, on 12th June, the other to Collin Glen, on August 21st.

These excursions consisted of an inspection of the same succession of rocks, that is to say the Rhaetic and Liassic shales together with the Cretaceous beds which overlies them. The main object was to compare the similarity and variation in the succession of the same beds when examined in two different planes nearly twenty miles apart.

Collin Glen, which is one of the type areas of the Cretaceous of Ireland, may be first described. Here we have, when working up stream, Triassic marls followed by dark Rhaetic and Liassic shales and these are overlain by nearly 100 feet of richly fossiliferous Cretaceous beds, consisting of dark green glauconitic sandstone with phosphatic nodules, glauconitic marl, yellow sandstone, light green glauconitic sandstone, a thin band of glauconitic chalk and finally hard white chalk. The glauconitic, so frequently present in the above beds, is seen in rounded dark green grains and has been shown to represent internal casts of foraminifera.

At Barney's Point, Islandmagee, the thickness of Cretaceous appears to be somewhat less, the total not being

more than 60 or 70 feet. The main subdivisions are not so clearly marked as at Collin Glen. There is found here a yellowish green sandstone containing *Inoceramus* (the fibre shell) and *Micraster*. This gradually becomes more calcareous and conglomeratic, till it passes into a thick band of glauconitic chalk containing pebbles, which is known locally as "Mulatto Stone." Higher up still, at the quarry near to the main road, the normal white limestone containing flints is to be found, as at Collin Glen.

It was considered by Dr. W. F. Hume (Quart. Jour. Geol. Soc., 1897, pp. 540-606) that both the character of the fossils and the lithology indicate that the sea waters in the Cretaceous period were on the whole deeper in the Islandmagee area than they were around Collin Glen.

J.J. HARTLEY, *Hon. Secretary.*

REPORT OF ARCHAEOLOGICAL SECTION.

Owing to transport difficulties the Section was only able to make one excursion during the Session, viz:—to Muckamore Abbey and the Boghead Souterrain, both objects of perennial interest.

The Souterrain is two-storied, being rare in this respect. It is easy of access, the entrance being carefully protected by the owner, Mr. Wilson, on whose farm the structure is situated.

A. A. CAMPBELL, } *Hon.*
JOSEPH SKILLEN, } *Secretaries.*

REPORT OF BOTANICAL SECTION.

During the Session Messrs. Carrothers and Moon reported new stations for the following plants:—

Equisetum trachydon, close to the Triassic inlier above Tornaroy Bridge, previously recorded by Whitla about 100 years ago.

Lactura muralis, at Lambeg. New to Co. Antrim.

Cerastium arvense, near Killinchy. New to Co. Down.

Elatine Hydropiper, on Derry shore of Lough Beg, where the old course of the Bann enters. New to Co. Londonderry.

Ranunculus Lingua, in quantity in old course of Bann at Creagh Bay.

Linaria minor, by railway track on Derry side of Toomebridge.

Anacamptis pyramidalis, at Craigantlet.

K. BOURKE, } *Hon.*
M. P. H. KERTLAND, } *Secretaries.*

REPORT OF JUNIOR DIVISION.

The Junior Division has had another progressive and successful year. Its membership now stands at 205, an increase of 35 on last year's figure.

The Division was again responsible for the exhibits at the Social Meeting held in October. This year the Division as a whole reached a good standard, shewing an intelligent and scientific approach to most subjects studied. We were very grateful to our affiliated Juniors, the Natural History Societies of the Friends' School, Lisburn and of Royal Belfast Academical Institution, and to the newly-formed Natural History Society of Methodist College. Also to Moneymore Young Farmers' Club, for the fine exhibits they contributed. We were also very grateful to the Seniors who did so much to help us.

Excursions were as follows:—

3rd April	... Cave Hill Quarries.
5th June	... Ardglass.
12th June	... Muckamore and Antrim.
15th June	... Cave Hill.
19th June	... Monlough.
26th June	... Comber Salt Marshes.
29th June	... Gilnahirk.
3rd July	... Massereene.
11th September	... Armagh.
25th September	... Whitehead.

These excursions were well attended and the work done on each occasion was most encouraging and satisfactory.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 1944.

RECEIPTS AND PAYMENTS ON GENERAL ACCOUNT.

RECEIPTS.

Balance at Credit of "General Account" at 31st March, 1943, viz:—

With Northern Bank, Limited ... £77 13 5
 Subscriptions received:—
 307 @ 6/- and 21 @ 3/- ... £95 5 0
 Arrears paid up ... 16 10 0
 Paid in advance for 1944-45 ... 9 6 0

Excursion Fees, 30 @ 5/- ... 121 1 0
 Excursion Account (without charging printing or postages ... 7 10 0
 Proceeds of Social Meeting ... 4 15 0
 "Flora" Account:—
 Sales during year ... 2 18 5
 Club Badges Sold ... 3 19 6
 Junior Division Subscriptions ... 2 6 6
 Sales of Supplement to old edition of "Flora" ... 5 18 0
 ... 0 16 6

£226 18 4

R. G. HENDERSON, Hon. Treasurer.

4th April, 1944

Audited and found correct.

WM. P. CHANDLER, } Auditors.
 ALFRED M. McKISACK. }

PAYMENTS.

Printing and Stationery ... £32 1 2
 Postages ... 25 12 6
 Incidentals, Secretary's Expenses and Telephone, Clerical Assistance and Petty Expenses ... 19 2 3

Hire of Lecture Hall and Committee Room ... £76 15 11
 Lanternist's Fees ... 14 10 0
 "I.N.J." Affiliation Fee, 1944 ... 2 10 0
 Subscription, the National Trust ... 3 0 0
 "Flora" Account:—
 London Storage Charges, Insurance and Postages ... 1 1 0

Junior Division Expenses ... 3 9 11
 Prizes Awarded to Junior Division ... 17 9 9
 ... 3 13 6

122 10 1

Balance at Credit of "General Account" at 31st March, 1944, viz:—

With Northern Bank, Limited ... 104 8 3

£226 18 4

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1945.

(EIGHTY-SECOND YEAR)

SERIES II.
VOLUME X.



PART VII.
1944-1945.

BELFAST NATURALISTS' FIELD CLUB.

EIGHTY-SECOND YEAR, 1944—45.

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WM. SWEENEY.

Retire 1947

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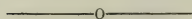
JOSEPH SKILLEN

W. GRAHAM R. SKILLEN

} 25 Stranmillis Gardens.

PROCEEDINGS.

SUMMER SESSION.



The following Excursions were made during the Session, but once again, owing to War restrictions, no Reports are appended.

20th May	... Rademon.
3rd June	... Donaghadee.
17th June	... Londonderry.
27th June	... Lambeg and Derriaghy.
1st July	... Magheramorne.
25th July	... Cavehill Quarries and Carr's Glen.
8th August	... Old Belfast.
19th August	... Lisburn.
9th September	... Larne Harboûr.

SPECIAL MEETING.

Presentation to Mr. J. Skillen.

A special meeting was held in the Old Museum on Tuesday, 9th May, for the purpose of making a presentation to the Senior Honorary Secretary, Mr. Joseph Skillen, on the completion of fifteen years in office.

The President (Mr. W. J. Weatherup, B.Sc.), occupied the chair and paid a warm tribute to Mr. Skillen's devoted services to the Club during a long period, being followed by several speakers from the large meeting, Miss W. J. Sayers then presented Mr. Skillen with a wallet of notes on behalf of the Club.

In his reply Mr. Skillen thanked the members for their gesture of friendship and goodwill and recalled many happy days spent with the Club over a period of more than half a century.

The meeting then terminated.

WINTER SESSION.

The authors of the various Papers, of which abstracts are given, are alone responsible for the views expressed therein.

With the exception of the Social Meeting, all meetings were held in the Museum Building on Tuesdays, at 7.30 p.m.

SOCIAL MEETING.

The Session was opened by a Social Meeting held on Saturday afternoon, 21st October, 1944, in the Museum Building, when once again the Junior Division arranged an excellent Exhibition of the results of their various efforts during the past Summer Session. Again the result was very encouraging and the attendance large. Tea was served at 4.30 p.m. and everyone present freely admitted that the Meeting had been a great success.

OLD BELFAST.

The second Meeting was held on 14th November, when Mr. A. S. Moore gave a lecture on the above subject.

In the course of his remarks the lecturer said:—That more attention should be paid in schools to local history and claimed that assertions made by pseudo-historians that Ulster's capital has no history worth recalling are unwarranted by facts. History is the methodical record of events. A city is defined in the Oxford Dictionary as "an important town—especially one created by Charter." Belfast was "an important town" created by its charter in 1611—333 years ago! Moreover, there is a record of Belfast 401 years before even the Battle of Hastings, which is generally accepted as the cardinal starting point in England's history.

Is it not a matter of history that the lay out of Belfast's oldest down-town streets still exhibit the characteristics of Northern European cities? Its early planners were, indeed, Dutch. When the Ulster Plantation of 1601-1620 was in arrangement the Dutch—and not the English—were the closest friends of the Northern Ireland folk. It was reported in London: "Wherever any of these Dutch settled in Ireland they soon made themselves most industrious and enlightened members of society." The Dutch then held the seas and they began for the Irish linen industry its overseas markets. They also gave Ulster the spinning wheel—erroneously called the Irish wheel—and were immensely helpful in building our linen trade. When Chichester in 1608 was asked to engage English engineers he told the Plantation Committee point blank that he had already in his service a couple of Dutch engineers and he retained them to plan Belfast's street.

Let us not forget, either, that 250 years ago Belfast was the bridgehead in ridding Europe (and England) of tyranny similar to that of the Nazis. The English resented the Dutch being in Ulster but soon they were to bless them. The great explanation of the advent of William Prince of Orange to Northern Ireland was because he knew he would be welcomed here—more than in England. And so in Corn Market was declared one of the World's greatest and most glorious Charters. Yes, in this Belfast street in 1690 the Dutch Deliverer, William of Orange, proclaimed that he came "that all loyal peoples may enjoy their liberty and possessions under just and equal governments."

It was March 1896 that saw the entry into Belfast of its first motor car. The car owned by John Brown (son of Waringstown born John Shaw Brown, founder of the linen firm of that name), made its debut towed by a horse. Even the steed must have laughed at this whimsical contraption as a potential rival. Yet within a fortnight the car was able—under its own power—to record up to 10 miles per hour. It was only 9 h.p. and high speed vibration would have shaken the vehicle to pieces. Roads then were wretched and the iron tyres made a clatter akin to a tank. There was neither windscreen, hood, fenders, bonnet or brake. Speed or power was adjusted by releasing water and fuel to the boiler.

The lecturer's recollections included Isaac Ward ("Belfastiensis") whom he described as his tutor in local history. Then he also recalled Vere Foster as a Giant among Great Men. Bare food and clothing this Prince of Philanthropists accepted from the world for his few personal wants. Everything else he gave to the needy, even in his final decade, when his income dwindled to less than a carter's wage, half went to Charity. He must have spent more than £100,000 in various benefactions for his fellow creatures.

He was not only the most practical of Irish patriots but one of the great makers of modern America and a pioneer in Irish-American relations. When, because of the potato famine of the 40's, Ireland's teeming population was starving and workless, Vere Foster saved his country. Governments and churches squandered money futilely on relief works which merely postponed disaster, but this one man Atlas-like shouldered an emigration scheme too gigantic for even an Empire. Personally he spent about £50,000 in passage money—whole or partial—for over

23,000 helpless young Irishmen and women to migrate to America where there were food and work for millions. His only condition in advancing the money was that they would send back their first earnings to bring out their relatives. So between 1848 and 1864 £13,000,000 came from U.S.A. to Ireland for this purpose.

And next this true and gentle knight attacked Giant Ignorance. "The pen is mightier than the sword." Vere Foster thus devised his famous headline copybooks with a quadruple aim:—(1) to teach standardised writing; (2) simultaneously to teach spelling; (3) to inculcate thinking; (4) to absorb character building habits. Here again the finance came in the main from his own sacrifice. And when this greatest Irishman of the Century died his wealth was—just £78!

Mr. Moore had an excellent audience and illustrated his subject by some very good lantern views.

CLOUDS.

The third Meeting was held on 28th November, when the President (Mr. W. J. Weatherup, B.Sc.) presented his Inaugural Address, taking the above as his subject. In the course of his remarks the President said:—

For the formation of Clouds three things are essential:—

1st—Moisture in the Air.

2nd—Cooling of the Air below Saturation Point.

3rd—Something on which the Moisture can Condense.

The first essential is supplied principally by evaporation from the surface of all the waters on the face of the Earth. Water tends to saturate the space above it with its vapour, the atmosphere continually receiving water-vapour from the surface of seas, lakes, rivers, etc. The rate of evaporation depends only on the temperature of the water vapour i.e. on the temperature of the air over the water surface, the higher the temperature the greater is the rate of evaporation. The very heavy rainfall of the Equatorial Regions is largely due to the prevailing high temperatures and the consequent high rates of evaporation.

Air is said to be saturated when it has absorbed as much water vapour as it can hold. The amount of water vapour required to saturate one pound of air at 32°F., is about 27 grains, at 62°F. the amount is about 58 grains, and at 92°F. 227 grains.

It will be observed that if air is warmed its moisture holding capacity increases much more rapidly than its temperature.

If one lb. of saturated air at a temperature of 62°F. , i.e. containing approximately 58 grains of water vapour, is heated when not in contact with water till the temperature reaches 92°F. , it is evident that although it still contains the 58 grains of water vapour, the air is not saturated and in fact the quantity of water vapour would have to be increased by just under three times before the air would be saturated at the higher temperature. Conversely if one lb. of air at 92°F. , containing 58 grains of water vapour, is cooled to 62°F. , without the addition or removal of water, the air will be just saturated at that temperature. If the temperature of the air is reduced still further, say to 32°F. , when the air can only hold about 27 grains of water vapour the remainder, 31 grains, will condense, i.e. it will change from vapour to liquid.

All atmospheric air contains some water vapour, the amount varying from just over zero, for very dry cold conditions, to about 4% by weight, for very hot and humid conditions, say in low lying equatorial forests.

The second essential is the Cooling of the Moisture Laden Air. The Earth's atmosphere is never at rest, and although at the ground the motion may appear to be horizontal, actually the motion of the air closely resembles the motion of boiling water in a pot, up and down as well as horizontally in all directions. In the formation of clouds it is the vertical circulation which is important, as it is *the* great cooling agent.

Air is heated by compression and cooled by expansion, so that if partially saturated air is expanded it may become sufficiently cooled to fall below the temperature of saturation when condensation of some of its moisture must take place. Such expansion takes place when air rises. At the Earth's surface, air, is subject to Atmospheric Pressure, and, as Atmospheric Pressure decreases with height, it follows that if air is for any reason forced to rise the pressure will be decreased, with consequent expansion and fall in temperature. Actually atmospheric pressure decreases on average by about one inch of mercury for each 950 feet of increase of height.

To the cooling by expansion must be added the cooling due to altitude, which amounts on average to a fall of 3°F. per 1,000 feet.

Air may be forced to rise in various ways, the three principal causes being:—

(1) It will rise by Convection when heated, in the same way as hot water rises to the top of a cistern. (2) If a current of warm air meets a current of cold, the cold air being more dense will force its way under the warm, causing the latter to rise. (3) A range of high hills or mountains in the path of a current of air will cause it to rise.

The third essential is “Something on which the moisture can Condense.” When we think of condensation we usually think of the drops of water formed on a cold spoon held in the steam coming from a kettle.

It will be observed that the moisture condenses on a solid surface which is at a temperature lower than the temperature of saturation of the air. *So far as we can see*, there is no solid surface at the usual cloud levels on which moisture can condense. Actually the atmosphere is full of minute particles of matter, similar to the motes which can be seen dancing in a sunbeam in an otherwise darkened room. It is on such particles that the vapour in the air condenses, forming exceedingly small drops, varying in size from one ten thousandth to one hundredth of an inch in diameter. These droplets are so small and numerous that we do not see them as drops, but as mist or cloud.

So at last we have a cloud, but since a cloud is made up of drops of water, and as water is heavier than air, the whole cloud would sink to the ground if the atmosphere were perfectly still. Here again vertical circulation comes into play, and it is the currents of air with an upward tendency which keep the clouds floating.

There are many types of cloud and for convenience in Meteorology the various types have been classified by the International Meteorological Committee. This classification is published as “The International Atlas of Clouds and States of the Sky,” the last edition being issued in 1932.

Modern cloud classification is based on the work of an English chemist, Luke Howard, who classified clouds, somewhere about 120 years ago, in four main divisions. As was usual in those days he used Latin names for the different types.

Howard’s types are:—

(1) *CIRRUS* (meaning curl)—Detached clouds of delicate and fibrous appearance, without shading, generally white in colour, often of a silky appearance,

(2) *CUMULUS* (meaning heap)—Thick clouds with vertical development. The upper surface is dome shaped and exhibits protuberances, while the base is nearly horizontal. When the cloud is opposite the sun, the surfaces normal to the observer are brighter than the edges of the protuberances. When light comes from the side, the clouds exhibit strong contrasts of light and shade. Against the sun they look dark with a bright edge.

(3) *STRATUS* (meaning sheet or layer)—A uniform layer of cloud, resembling fog, but not resting on the ground.

(4) *NIMBUS* (meaning rain cloud)—A dark gray cloud, almost black, with a diffused base which looks wet because of the general precipitation. Rain is always falling from the base of such a cloud, although such rain may be re-evaporated before it reaches the ground.

Any other form of cloud can be described by a combination of the names of any two of the basic types, such as Cumulostratus; or an adjective is added to the basic names to indicate some special property, for example, Altostratus.

So far we have seen that clouds are condensed water vapour, in exceedingly small droplets, at the top of a column or columns of rising air. If the air rises uniformly over a comparatively large area of the Earth's surface, the resulting cloud form is stratus, while if the upward motion has a high velocity and is concentrated into a stream or streams of comparatively small cross-sectional area, Cumulus clouds are formed. We have also seen that while the droplets are small they will float as cloud. How then is rain formed?

No one, I believe, has yet succeeded in manufacturing rain in laboratory conditions, consequently it cannot be said definitely how rain is produced, but of the theories put forward that of Dr. W. J. Humphreys, of the United States of America Weather Bureau, seems the most probable. His theory is that when cloud is forming there comes a time when all the available nuclei inside the cloud, on which water vapour can condense, have been used for that purpose. If more moist air rises till it is cooled below saturation temperature, or if for any reason the temperature falls, more vapour will condense, and the only available surface for such condensation is that of the drops already formed. If this process is continued long enough the droplets will grow into drops, weighty enough to fall through any ascending currents there may be. Furthermore, as the

upper part of the cloud is likely to be the coldest part, the drops will grow there more quickly, because of the greater rate of condensation, and the first part of their journey towards the Earth will be through cloud where each drop will encounter smaller drops, these smaller drops will be absorbed by the larger, which while they are thus falling will grow still larger and will therefore fall with ever increasing speed. Finally they reach the ground and if it is in this part of the World some one says "It's Raining Again."

Most people would say that snow is frozen rain, but if the structure of a snowflake be examined it is found that this explanation is not satisfactory. Examination shows that a snowflake is a crystal of solid water in some stage of its growth (crystal is here used in its scientific sense, *i.e.* a body whose atoms are arranged in a definite pattern, the crystal faces being an outward expression of the orderly arrangement of the atoms), and as the growth of crystals is a comparatively slow process, it is probable that snowflakes form rather slowly and in air which contains little moisture.

As already stated snow is not frozen rain. What then do we get when rain freezes? An ordinary dictionary defines hail as frozen rain, but this is only part of a most interesting story.

When a hailstone is cut through the middle it is found to be built up of alternate layers of ice and snow and this construction gives us the clue as to how hailstones grow.

The centre of a hailstone is a frozen raindrop, so it appears that the water vapour condenses into the liquid before freezing (not like snow which freezes directly from water vapour or very thin cloud into ice crystals), and this indicates that the water drop has risen to a great height before beginning to fall, and has risen very quickly. Actually hail is only formed in the conditions that produce Cumulus clouds, that is when there are violent updraughts of comparatively small cross-sectional area.

Favourable conditions for the formation of hail occur most frequently in the Temperate Zones in late Summer over the Continental land masses. Because of the intense heating of the layer of air close to the ground, very violent updraughts are caused. In consequence of the rapid rise of the air, cloud is soon formed and the droplets quickly grow into raindrops, which by this time have reached a height where it is cold enough to freeze them, and thus the cores of hailstones are formed. If these cores now fell directly

to Earth they would, because of their small size, almost certainly melt before they got there, and would in fact fall as rain, or, perhaps, be re-evaporated before reaching the ground. Probably this does happen to a large proportion of the cores, but in other cases a core, after falling some distance, is again caught in the upward current and may be carried up and down in this way many times. When a core is falling through the cloud water vapour will condense on its surface, and when the core rises again the skin of water will be frozen. In the uppermost region, owing to the intense cold and the thinning out of the cloud it will be snowing and the growing hailstone gets a coating of snow before it starts to fall again. In falling another layer of water condenses on it, and when the hailstone rises again freezes on the surface of the snow layer. In this way alternate layers of ice and snow are added to the growing hailstone till finally it becomes weighty enough to fall to Earth.

In this part of the World hailstones are seldom more than about a quarter of an inch in diameter when they reach the Earth, but where conditions are favourable, for example over a Continental area, they are commonly half an inch in diameter, and occasionally as large as cricket balls.

On the Wheat Belt in Kansas, in June, 1927, hail caused damage to standing wheat estimated at 2,000,000 dollars.

In a Roumanian village, on May-day, 1928, when the villagers were having an open air feast, a hailstorm occurred suddenly, with hailstones as large as hen's eggs, and before they could get to shelter, six children were killed and ten adults seriously hurt.

In the Southern Hemisphere, on the open Veldt, in South Africa, many animals and occasionally people are killed by hail.

AFFORESTATION IN NORTHERN IRELAND.

The fourth Meeting was held on 12th December, when Mr. D. Stewart (Chief Forestry Inspector in the Ministry of Agriculture), gave a lecture on the above subject.

In the course of his remarks Mr. Stewart said:—

An area of some 33,000 acres has now been acquired by purchase or leasing. Of this area some 6,000 acres are unplatable owing to infertility, exposure or other causes.

An area of some 20,000 acres is under woods and plantations. A small area of woodlands has been purchased, but most of the plantations have been planted by the Ministry.

The earliest acquisitions were made at Ballykelly, Co. Londonderry; Knockmany, Co. Tyrone; and Castlecauldwell, Co. Fermanagh. These were acquired by the old D.A.T.I. prior to 1920. The first large block, approximately 3,000 acres, was acquired by lease in 1920 at Baronscourt, Co. Tyrone, by the Forestry Commission. These forestry areas were taken over in 1922 by the Ministry of Agriculture, Northern Ireland.

State planting started about 1913, but up to 1921 only 325 acres had been planted. From 1922 to 1928, the rate of planting averaged 350 acres per annum. It was then decided that a programme of planting 1,000 acres per annum should be adopted with the object of planting a total area of at least 50,000 acres. This programme was carried out up to 1940. Since then, owing to War conditions, there has been a slight reduction in the area planted annually.

An ideal to be aimed at in a forest block is to plant a more or less equal area year by year till such time as the first planted areas are ready for clear felling. A short forest rotation would be 50 years, so that a block of 5,000 acres would be required if 100 acres are to be planted annually. For economic working, 100 acres per annum is a very satisfactory planting programme for a forest block. Later on, a block of this size would provide a constant supply of logs to keep a sawmill of good size fully employed.

A very considerable area of land has now been acquired in North Co. Derry. A start was made with the purchase of Cam, a small area of 200 acres, and satisfactory progress has since been made in building up a considerable forest area of about 10,000 acres. Recently good progress has been made in the acquisition of land in Central Derry around Draperstown.

Progress made in acquiring land in Co. Antrim has been disappointing. It has not been possible to acquire any block of satisfactory size, but it is possible that this may yet be remedied.

Substantial progress is being made in the Newtown-stewart area. In addition to Baronscourt two or three acquisitions have been made around Lislap, on the road between Omagh and Gortin.

The conditions in Co. Fermanagh are very good for forest growth. A great deal of progress has not yet been made in acquiring land, but recently progress has been better, and it is hoped in time that a substantial area may be built up around Lower Lough Erne.

The main block of the Mourne Mountains is on the whole unfertile and unsuitable for tree growth, but at the Newcastle end and at the Rostrevor end considerable areas of reasonably good land have been acquired. The best area in Co. Down is Tollymore Park.

To encourage farmers and others to plant young trees, lots of 1,000 or more are distributed at reduced rates to anyone prepared to undertake to plant them on their own holding. Last season, a quarter million trees were distributed in this way, and altogether, $2\frac{1}{2}$ million trees have been sent out under the Scheme, sufficient to plant 1,500 acres.

Grants for planting and scrub clearing have been available to persons prepared to plant on a commercial scale. The amount of grant per acre has been low, and only about 300 acres have been planted under this Scheme.

The lecture was illustrated by a very fine series of excellent views.

THE PREHISTORIC MEN OF CO. DERRY.

The fifth Meeting was held on 16th January, when Mr. A. McL. May gave a lecture on the above subject.

In the course of his remarks the lecturer said:—The area of the lower Bann valley now embraced by the county of Londonderry played an important part in the early colonisation of Ireland. Its wealth of stone artifacts, both along the Bann and on the coast, records an occupation dating back to post-glacial times when the tall, robust, long-headed hunting people of Europe entered the north of Ireland by way of Scotland. The well known finds from Oban, Larne and Newferry show cultural affinities referable to the Mesolithic period,

From the sandhills at Portstewart comes evidence of a continuous occupation over thousands of years. The dredging of the river has revealed at the fording places colossal quantities of flint tools and weapons of many types. The characteristic flint is a blade with a trimmed butt rather than one with the true tanged base which is relatively uncommon here though widespread in Europe.

Two prehistoric tracks ran from the river inland to the hills; one from the mouth of the Bann to the Roe valley and the other from the ford near Kilrea to Ballydullaghan; continuations of both are found in Tyrone and the west. Scores of prehistoric monuments border these routes, such as horned cairns, round cairns, wedge-shaped gallery graves, dolmens, stone circles, forts, standing stones, and souterrains. A few are adjacent to the sea and a number of the megalithic chambers are situated below the 50 feet datum line, but the majority is elsewhere in Northern Ireland between 500 and 1,000 feet.

Like the hunters of the Mesolithic period many of the ethnic groups that followed them chose the narrow and easy passage to the north of our island and entered the hinterland of the Bann valley. Important contributions arrived towards the end of the Mesolithic and beginning of the Neolithic periods when a primitive form of agriculture was introduced which supplemented the uncertain food supply of hunting and fishing and so revolutionised the lives of succeeding generations. The bearers of this culture came from the Mediterranean region and were people of Mediterranean race. With them came the religious cult expressed in their great stone burial chambers. Unlike the hunters they were short in stature, small-boned and oval-faced.

Towards the middle of the Bronze Age Ireland received a number of Beaker folk. This was first definitely known when an excavation uncovered one of their burials at Wellglas cairn, Limavady. Another at Ballydullaghan, Garvagh, revealed the inhumed remains of one of these warriors. This race was tall, heavy-boned, muscular and round-headed. Originating in lands south of the Baltic they travelled across Europe and down the Rhine, crossed to the east coast of England and spread into Scotland, some of them ultimately arriving in the Bann valley region. It is believed that the Beaker folk built the great stone circles of Stonehenge but it is from their excellent pottery that their name is derived.

Considerable movements of population took place during the Bronze Age. It would appear that these reached their maximum during periods of extreme rainfall or drought. Towards the end of this period Ireland received three additions to its ethnic stock—tall Beaker folk now more Nordic in appearance, small round-headed Alpines, and a mixture of these two.

The Iron Age with its Hallstatt and La Tène cultures added more of these Nordics, Alpines, and Nordic-Alpines, yet Ireland had by this time received the ethnic units that have gone to form her present population, amongst whom can be seen individuals that correspond more or less closely in appearance to those adventurous arrivals of prehistoric times of whom many found a welcome land-fall in the Bann valley.

The lecture, beautifully illustrated by many excellent lantern views, was greatly appreciated by a good audience.

A TALK ON SHELLS.

The sixth Meeting was held on 6th February, when Prof. Gregg Wilson, O.B.E., M.A., D.Sc., M.R.I.A., held the close attention of an appreciative audience, for more than an hour, while he informally conversed on the above subject.

There are many makers of shells in different groups of the animal kingdom, from *Protozoa* to *Vertebrata*. And the uses of shells are also many; often they furnish protection from stormy conditions; sometimes they serve to protect shore-animals from drying up; sometimes they are provided with spines etc., which avert attack from enemies; and in many cases, as, for instance, in the "spiny cockles," they have excrescences that give to burrowers a certain security of anchorage. The ship-worm uses its valves to drill holes in wood.

The most familiar makers of shells are *Crustacea* and *Mollusca*. These differ in that the *Crustacea* produce their shelly matter all over the body, while *Mollusca* make shells only from their "mantles." The crustacean shell has to be cast frequently to allow increase in the size of its owner, while the molluscan shell does not check the growth of its maker, and moulting is therefore not necessary.

The common *Mollusca* of our shores are "Univalves" and "Bivalves." The Univalves usually have a high spiral body and shell; but some low-bodied forms, such as the "Coat-of-Mail" Shell, have not undergone torsion; and it is of interest that many sea-slugs that have lost their shells have recovered external symmetry. An interesting distinction is found among univalve shells. Many of them, such as the whelks and the dog-whelks, have an "anterior canal" or notch in the mouth of the shell; and it is found that nearly all of these are carnivorous, while the round-mouthed forms are vegetarian. An exception to this rule is seen in the Necklace Shells, which have no anterior canal, but are definitely carnivorous. The notch has no direct connection with the carnivorous habit, but is used for the passage of a breathing tube leading to the gill-chamber. Dog-whelks are also interesting as showing marked modifications in shape and stoutness of shell to suit stormy or placid conditions. The periwinkles furnish good illustrations of zoning or adaptation to different degrees of exposure to the air. And the limpet is remarkable for its modifications to avoid and resist the worst assaults of waves.

Bivalves are headless *Mollusca*, which feed on micro-organisms, which they get by straining a current of water that is created by the action of cilia on the surface of their gills and mantle. Their 2-valve shell is produced by a mantle which hangs like a jacket on the sides of a symmetrical body. The shell grows in a peculiar way: chiefly anteriorly, posteriorly, and ventrally, but very little dorsally. The growth in surface area is due to the activity of glands at the edge of the mantle; and successive additions are often indicated by "lines of growth," which sometimes mark annual accretions.

Where the valves meet dorsally there is commonly an "elastic ligament," formed in continuity with the outer layer of the valves. Sometimes this ligament is outside the hinge-line or meeting place of the valves, and in that case the ligament is stretched when the valves are closed: the ligament tends to re-open them. In other cases the ligament is internal to the hinge-line, and then it is compressed when the valves are closed, and again it tends to open them. Usually the valves are kept from dislocation by a number of hinge-teeth. These are particularly strong, and often widespread, in the superficial burrowers, which are exposed to waves and to predatory enemies. The teeth are possibly derived from marginal wrinkles, such as one sees serving

to interlock the valves of the cockle. On the inner surface of the bivalve shell there are "impressions" of the adductor muscles which serve to close the valves when that is necessary. There is also usually a distinct "pallial line" marking the place of attachment of the mantle to the shell. Often this pallial line shows a bay or "sinus," which is specially large in species that burrow deep and have large "siphons" to convey water to and from the gill-chamber. As a rule the siphons can be retracted into the sinus, but sometimes, as in the Gapers, the siphons are so large that they always protrude, and in the dry condition the shell gapes.

The lecture was fully illustrated by a splendid series of well selected lantern views.

WATERWAYS.

The seventh Meeting was held on 27th February, when Mr. H. S. Black read a paper on above subject, finely illustrated by many excellent lantern views.

(No abstract).

WHAT IS THIS PLANT?

The eighth Meeting was held on 13th March, when Miss W. J. Sayers, B.A., gave demonstrations on above subject. In the course of her remarks she pointed out that, much aid in identifying plants may be gained by bringing into play our own senses of sight, smell, touch and even taste. To reach certainty, however, at least a little technical knowledge is necessary. With the help of illustrations, a botanical "Key," and a glossary, the student who knows the elementary facts of plant structure and has a general knowledge of the principles on which flowers are gathered into families, may hope to be able to name his specimen. The more important of these families with some of their distinctive characteristics were illustrated by lantern slides and actual specimens.

QUESTION NIGHT.

The ninth and concluding Meeting was held on 27th March, the Question-Master being Mr. J. A. S. Stendall, M.R.I.A. A good list of questions were put before the audience, the answers being more or less satisfactory to the querists.

ANNUAL MEETING.

The Annual Meeting was held on 17th April, the President (Mr. W. J. Weatherup, B.Sc.), in the chair.

In presenting the eighty-second Annual Report the Committee is pleased to write that the Club still occupies an important place in the cultural life of the community, as our large membership testifies. Notwithstanding the financial stringency brought about by the War, our numbers compare favourably with the year 1939, and the present year compared with the past shows no diminution in numbers. During 1944-45 the loss due to deaths, removals and resignations has been fully replaced by the admission of new members. The roll now stands as follows:— Ordinary members 436, Life, Honorary and Corresponding members 17, a total of 453. Adding to this our Junior members 231, makes a very satisfactory total of 684.

During the past year a new Club, The Rostrevor Naturalist Field Club, has become affiliated to us. Of the other six affiliated Clubs, three publish interesting reports of their activities in the current issue of *The Irish Naturalist Journal*; two, Omagh, and Tyrone, are in suspense during the War, but it is the hope of the Committee that they will resume their good work in quieter times. The Armagh Club, it is understood, is still in active operation.

On 9th May a special Meeting of the Club was held for the purpose of making a presentation to the Senior Honorary Secretary who had completed sixteen years in that office, the longest period in office of any Secretary of the Club.

During the Summer nine excursions were held, all to places of easy access, as the time has not yet come to hire private buses for excursions further afield. Notwithstanding uncertain weather during the last Summer the attendance on the whole may be considered satisfactory.

The Winter Session opened with a Social Meeting, the Junior Division, under the guidance of Miss Bolton, their Honorary Secretary, providing a most interesting and instructive display of exhibits. All the lectures were illustrated and interesting discussions followed.

JOSEPH SKILLEN,	} Hon.
W. G. SKILLEN,	
	} Secretaries.

OBITUARY.

During the year the Club suffered a serious loss through the death on active service of Denis H. Rankin, R.A.F., a member of the Committee. He was an ardent ornithologist and naturalist who, with his brother, contributed articles in scientific journals on bird studies. His family has provided a Memorial Fund in his memory for the purpose of awarding prizes to members of the Junior Division for original contributions to the science in which he was so interested.

The names of other members who have passed away since our last Annual Meeting are given below. To their surviving relatives we respectfully offer our condolences.

John Campbell, M.P.

J. D. Prenter.

Miss M. E. Coey.

Miss H. Scott.

J. McCance.

Mrs. A. M. Weatherup.

J. L. Mason.

REPORT OF BOTANICAL SECTION:

Five excursions were held, all being well attended. The Section is active and enthusiastic, with an increasing membership. The excursions were as follows:—

GREENMOUNT, via Antrim, for marsh and woodland flora, Yellow Monkey-flower (*Mimulus Langsdorffii*) still there, but Marsh Meadow Rue (*Thalictrum flavum*) not found.

LAGAN CANAL at Moira. Water low, but marsh and water plants of great interest, were found, including:—Fine-leaved Water Dropwort (*Oenanthe aquatica*); Great Spearwort (*Ranunculus Lingua*); Broad-podded Marsh Cress (*Nasturtium palustre*); Water Radish (*Nasturtium amphibium*); *Apium Moorci*; Common Duckweed (*Lemna minor*); Ivy-leaved Duckweed (*Lemna trisulca*); Greater Duckweed (*Lemna polyrrhiza*).

UPPER COLIN GLEN, where the following plants were found:—*Geum intermedium*; Bird's-nest Orchis (*Neottia Nidus-avis*); Lesser Wintergreen (*Pyrola minor*); and *Equisetum trachyodon*. A double Lady's Smock (*Cardamine pratensis*) seemed to be well established here.

MAGHERAMORNE, where on the spoil heaps near the shore the Bee Orchis (*Ophrys apifera*) and Pyramidal Orchis (*Anacamptis pyramidalis*) are still found, with Red Valerian (*Kentranthus ruber*) growing everywhere, White Valerian was also found. There was no trace of Viper's Bugloss (*Echium vulgare*) previously recorded here.

DONAGHADEE was the scene of the 5th and last excursion, where by the kind permission of Mr. Savile Hardy a most pleasurable afternoon was spent in his wonderful and varied garden and grounds.

M. P. H. KERTLAND, M.Sc.	} Hon. Secretaries.
W. J. SAYERS, B.A.	

REPORT OF GEOLOGICAL SECTION.

For the Summer Session five excursions were arranged. These were as follows:—

July 1	... Magheramorne Quarries.
July 25	... Cavehill Quarries and Carr's Glen.
August 12	... Lisburn Water Works and Recent Bores.
September 2	... Coalpit Bay, Donaghadee.
September 9	... Raised Beach, Larne.

The excursion to the Cavehill quarries and Carr's Glen was abandoned on account of heavy rain. All the others were carried out and proved of great interest.

The excursion to Magheramorne was held in conjunction with the Botanical Section. The Geologists were led by Mr. J. J. Hartley, M.Sc. He pointed out how frequent visits to such a quarry are necessary owing to the speed by which it was being excavated. When Mr. Cleland first wrote on the redeposited chalk found beneath the old chalk land surface, which was covered by a great depth of basalt, the phenomenon on which he wrote could only be seen at the top of the quarry beneath the overburden which was being cleared to get at the undisturbed chalk. Subsequently, as work proceeded and the quarry face was cut back, his theory was amply supported by the discovery of a large swallow-hole of which a sketch can be seen in a further article in *I.N.J.* of 1937, No. 8 Vol. VI.

Mr. Hartley pointed out the swallow hole due to the solution of the chalk. The water which formed this probably passed out to sea. The swallow hole is filled in with flints, basalts, chalky marl, and sandstone and the falling in of the overlying basalt could be traced in the cliff above.

Another result of the rapid cutting away of this quarry was the exposure of the Lias at the South end of the quarry where a fault of 15 or 20 feet had brought up the Lias. Springs were noted coming out between the Lias and the Chalk. To work further in this direction would be dangerous as the base of the quarry is below sea level and there is danger of sea water entering, as well as slips occurring over the Lias.

The exposure which we were privileged to see is not marked on the one inch geological map and may be soon covered up by water and then debris. The Glacial Clays above the quarry contained many Liassic erratics brought from a distance, including some *Gryphaea incurva* (Devils Toe-nails).

The next excursion was to the Lisburn Water Works under the leadership of Mr. R. E. L. Clarke, B.A., B.E., and Mr. J. J. Hartley, M.Sc. The object was to examine two bores which had recently been sunk to supply the extra requirements of an increased population. The first bore inspected was situated at the North end of Duncan's reservoir and is known as No. 3. The core as it was extracted was laid on the grass exactly as it came out of the bore and gave a magnificent visual section of the strata passed through for a depth of 400 feet. This consisted of 70 feet boulder clay and the remainder of red and green Triassic Sandstone.

No. 2 bore was situated at the North end of Boomer's reservoir. In sinking this bore two steeply inclined dykes were encountered. The core showed that where the dykes had come into contact with the Triassic sandstone this had been altered and bleached and what had been originally a red sandstone was now converted to a grey colour. This bore had been sunk to almost 500 feet.

Another interesting excursion took place to Donaghadee. Here the Anglesey limestone of which the fine pier was constructed contains many magnificent specimens of *Productus giganteus*, and of *Lithostrotion* and other corals. After examining the pier the party proceeded along the coast to Coalpit Bay. Here the grits, shales and mudstones of the Ordovician and Silurian rocks were examined and many specimens of *Dicellograptus* and other Ordovician fossils were obtained. As these are the earliest extant evidence of animals formerly living in the neighbourhood of the site of Belfast members had the exciting feeling of being in touch with life here about 500 million years ago. In addition many specimens of *Rastrites* and *Monograptus* were obtained from the Silurian rocks. Near the junction

of Ordovician and Silurian rocks a lamprophyre dyke was examined.

The last excursion of the season was to Larne raised beach. The formation, history, and chronology of this has been given with full details, sections and photographs in a recent book on "The Irish Stone Age" by Hallam L. Movius. At the request of the conductor of the day Mr. Moffat, one of the secretaries, explained the work done by Dr. Movius and the Harvard University Expedition as well as by former members of the Belfast Naturalists' Field Club and by one member still active in its service Dr. R. L. Praegar.

J. K. CHARLESWORTH,	} <i>Hon.</i> <i>Secretaries.</i>
A. H. DAVISON,	

REPORT OF ZOOLOGICAL SECTION.

During the past season three excursions were held. The places visited being as follows:—Moirá (Lagan Canal), on 24th June; Sixmilewater (near Templepatrick), on 29th July; and Donaghadee on the 2nd September.

At Moirá *Planorbis corneus* L. was noted in large numbers, having now apparently colonised the whole length of the Canal, from Belfast to Lough Neagh. It was first discovered in the Lagan Canal near Drumbridge by the late R. J. Welch, M.Sc. M.R.I.A., during a B.N.F.C. excursion in June 1933. Prior to this it had been discovered at Cushendall by Miss Nora Fisher (now Mrs. MacMillan). It was found during 1933 by R. J. Welch in the lily pond of the Spanish Garden at Mountstewart, where it suddenly appeared, not having been seen the previous year, and from which he recorded an unpigmented variety possessing a red body. The distribution of this species in our area, is of considerable interest, as with the exception of W. F. de V. Kane's Sligo specimens it was until comparatively recently only recorded in Ireland from Co. Kildare and the N.E. corner of Queen's County. In our area it would appear to have been introduced with water plants.

The Sixmilewater excursion was somewhat disappointing, as owing to the train service, many members were unable to be present, and also on account of the short time available for examining the river.

The excursion to Donaghadee was very well attended, and after a brief visit to Coalpit Bay, many members visited Donaghadee harbour, where, owing to the very low tide the upper portion of the *Laminaria* zone was well

exposed. The following species were noted:—*Asterias rubens*, *Porcellana longicoris*, *Balanus balanoides*, as well as numerous sponges, etc.

R. MACDONALD, } *Hon.*
J. S. LOUGHRIDGE, } *Secretaries.*

REPORT OF ARCHAEOLOGICAL SECTION.

This Section held two excursions during the Session, the first being to the "Kempe Stone," Dundonald. This pre-historic monument is an interesting example of its class and is carefully conserved.

The second excursion was to the "Motte and Bailey" at Dromore which has been partially restored by the Ancient Monuments Committee and is a most interesting memorial of the Anglo-Norman conquest of Ulster. The members also visited the Cathedral, associated with Bishop Jeremy Taylor, and were kindly shown round by Canon M'Garvey, the Rector.

I. R. CROZIER, } *Hon.*
J. SKILLEN, } *Secretaries.*

REPORT OF JUNIOR DIVISION.

This has been a highly successful year and much hard work has been accomplished, with real progress in every direction. Progress has also been made in membership, our numbers now being 231, an increase of 26 during the year, and attendance at all excursions has been good.

Excursions during the year were as follows:—

22nd April	...	Lagan Valley.
6th May	...	Carr's Glen.
20th May	...	Rademon.
27th May	...	Greenmount.
3rd June	...	Donaghadee.
24th June	...	Lough Neagh.
8th July	...	Dundonald.
25th July	...	Cavehill Quarries.
12th August	...	Newtownards.
19th August	...	Lisburn.
9th September	...	Blackhead.
28th October	...	Larne.

For the Social Meeting in October, the Juniors again provided some fine work, particularly from Inst. and

Methody, and we were very pleased to welcome the first exhibit to be shown by the newly-formed N.H.S. of the Belfast High School. The Friends School and the Moneyrea Young Farmer's Club also exhibited, and to Mr. Cleland we were indebted for a very beautiful and most interesting display of shells and minerals. The meeting concluded with a very entertaining display of nature films, very kindly shown by Mr. Ted Hazelton of Methody Natural Science department. Once again, our best thanks are due to the Senior Committee, who provided the prizes. A special prize, from the collection of the late Robert Bell, kindly presented by the Misses Johnston, was awarded to Edmund Porte, for Geology.

We wish to conclude this Report by placing on record our appreciation of the great services rendered to the Junior Division by our late friend Denis Rankin, who died on active service during the year.

Denis joined us in 1937: later he became a staunch member of the Junior Division Committee and remained with us, *ex officio*, when he entered Senior Membership. Denis meant much to us as a companion on our excursions and as a very excellent naturalist to whom every one of us could turn for advice and help—always sure that we would find this unstintingly. But not only in these capacities is our loss, Denis set at all times an example for both achievement and character. Not all the Juniors perhaps, can yet appreciate the shattered possibilities, but every Junior, from the very youngest, looked up to Denis with admiration and respect.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

BELFAST NATURALISTS' FIELD CLUB.
HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 1945.
GENERAL ACCOUNT.

189

RECEIPTS.		PAYMENTS.	
Balance at Credit of General Account at 31st March, 1944:—	...	Printing and Stationery ...	£52 13 1
With Northern Bank, Limited ...	£104 8 3	Postages ...	26 10 2
Subscriptions received:—		Incidentals, Secretary's Expenses and Telephone, Clerical Assistance, Advertising, Bank Charges and Petty Expenses ...	20 12 0
For Year 1944/45:			
Full Year, 339 @ 6/- ...	£101 14 0	Hire of Lecture Hall and Committee Room ...	99 15 3
Half Year, 20 @ 3/- ...	3 0 0	Lanternist's Fees ...	14 10 0
Arrears Collected ...	£104 14 0	"I.N.J." Affiliation Fee, 1945 ...	7 7 0
Paid in Advance for 1945/46 et seq. ...	14 2 0	Donation to "Bell-Welch Memorial Fund", see below ...	3 0 0
Entrance Fees, 37 @ 5/- ...	5 14 0	Subscription to The National Trust ...	10 0 0
Excursions Accounts (without charging printing or postages) ...	9 5 0	"Flora of N.E. Ireland," London Storage ...	1 1 0
Proceeds of Social Meeting ...	5 3 8	Charges, Insurance, etc. ...	4 9 1
Sales of "Flora of N.E. Ireland" ...	2 15 6	Junior Division Expenses ...	20 2 3
Sales of Club Badges ...	2 10 6	Prizes awarded to Junior Division (less special donations) ...	1 3 3
Junior Division Subscriptions ...	1 8 0		
Donation from Prof. W. A. F. Balfour-Browne ...	4 13 6		
	10 0 0		
		Balance at Credit of General Account at 31st March, 1945:—	£161 7 10
		With Northern Bank, Limited ...	103 6 7
			£264 14 5

DENIS H. RANKIN MEMORIAL FUND.

Total.	Interest.	Principal.	Total.	Interest.	Principal.
Amount donated by Mr. W. J. Rankin on 20th Nov., for purpose of creating the above Fund in memory of his son, Pilot-Officer Denis H. Rankin, R.A.F.V.R., killed on active service, 13th August, 1944			Balance at Credit of the Fund at 31st March, 1945:— On Deposit Receipt with Northern Bank Ltd., at 31st March, 1945; but transferred on 9th April, 1945, to a Deposit Account at Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Denis H. Rankin Memorial Fund "		
£50 0 0	—	£50 0 0	£50 0 0	—	£50 0 0
£50 0 0	—	£50 0 0	£50 0 0	—	£50 0 0

R. G. HENDERSON, Hon. Secretary.

9th April, 1945.

Audited and found correct.

ALFRED M. M'KISACK, }
WM. P. CHANDLER, } Auditors.

13th April, 1945.

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1946.

(EIGHTY-THIRD YEAR)

SERIES II.
VOLUME X.



PART VIII.
1945-1946.

BELFAST NATURALISTS' FIELD CLUB.

EIGHTY-THIRD YEAR, 1945—1946.

GENERAL COMMITTEE.

President

GEORGE C. REILLY.

Vice-President

E. ESTYN EVANS, M.A., D.SC., F.S.A.

Hon. Treasurer

ROBERT G. HENDERSON, F.C.A., 17 Castle Place.

Hon. Librarian

V. F. GRAINGER.

Editor of Preceedings

A. McL. CLELAND.

Representative at A.M. Committee

R. S. LEPPER, M.A., F.R.HIST.SOC.

Hon. Recording Secretaries

J. A. S. STENDALL, M.R.I.A.

R. C. G. C. ACHESON.

Hon. Secretaries Botanical Section

MISS M. PATRICIA H. KERTLAND, M.SC.

J. McK. MOON.

Hon. Secretaries Geological Section

ALEX H. DAVISON, F.R.S.A.I.

H. S. BLACK.

Hon. Secretaries Zoological Section

RANALD MacDONALD.

J. S. LOUGHBRIDGE, B.SC., M.D., F.R.C.S.

Hon. Secretaries Archaeological Section

MRS. I. R. CROZIER.

J. SKILLEN.

Hon. Secretaries Survey of Antiquities Committee

A. ALBERT CAMPBELL, F.R.S.A.I.

Prof. J. KAYE CHARLESWORTH, D.SC., M.R.I.A. F.G.S.

Hon. Secretary Junior Division

MISS FELICITY BOLTON.

Members of Committee

Retire 1946.

W. P. CHANDLER.

REV. W. R. MEGAW, B.A., M.R.I.A.

WM. SWEENEY.

Retire 1947.

MISS K. BOURKE, B.SC.

E. N. CARROTHERS.

J. J. HARTLEY, M.SC.

Retire 1948.

MRS. V. F. GRAINGER.

MISS W. J. SAYERS, B.A.

W. J. WEATHERUP, B.SC.

Honorary Secretaries

JOSEPH SKILLEN

W. GRAHAM R. SKILLEN

} 25 Stranmillis Gardens.



Plate 6.



In Saintfield Demesne.

[Photo by A.M.I.C.]

PROCEEDINGS.

SUMMER EXCURSIONS.

The following Excursions were made during the Session, but again, owing to restrictions imposed by the War, no Reports are appended.

15th May	...	Ballyutoag.
19th May	...	Rowallane, Saintfield.
2nd June	...	Rostrevor.
16th June	...	Toomebridge.
3rd July	...	Cavehill Quarries and Carr's Glen.
21st July	...	Carrickfergus.
11th August	...	Lyle Hill, Templepatrick.
14th August	...	The Black Mountain.
1st September	...	Armagh.
29th September	...	Saintfield Demesne.

WINTER SESSION.

The authors of the various Papers, of which abstracts are given, are alone responsible for the views expressed therein.

With the exception of the *Conversazione*, all Meetings were held in the Museum Building on Tuesday evenings at 8 o'clock.

“ THIS OUR HERITAGE.”

The first Meeting of the Winter Session was held on 23rd October, when the President (Mr. G. C. Reilly), addressed a large audience on the above subject.

In his opening remarks the President gave some interesting reminiscences of his early associations with the Field Club. He then dealt with the work rendered to the Club and to Science by several well known members of the past with whom he had been in intimate contact.

Samuel A. Stewart (the President remarked) of whom sagas could be sung without relating all he did to help others along. The chief thing I would emphasize of him was his flair for classification:—“ Get the things in their proper places and the specific names can follow,” he would say.

Quiet, unassuming, and yet with a fund of dry humour, he had a brain that took in all his eyes saw. Memory calls up a little old man, then well on in years, in a fustian suit, with a wonderful soft hat.

My next association was with that ardent Pteredologist W. H. Phillips, and whilst he was quite entrancing to follow in his special interest in Nature study as he revealed the niceties of their needs and explained about place, climate, seeding, etc., ferns did not capture my imagination. Yet such an enthusiast could not fail to leave some lasting impressions, so that even yet I can recognize some of the classical specimens.

Then came Joseph Wright and his microscope and my attention was riveted on the seemingly endless variety of foraminefera, each of them so small that very fine muslin was needed to separate them from the mud in which they were encased. To Joseph Wright the Field Club owes a deep debt of reverent gratitude for a lifetime spent in detailed study. His records published in the "Proceedings" of the Field Club are world-wide standards. His interest was the deep study of the minute. In addition, he was one of the most unselfish scientists I ever met.

In passing I must allude to Wm. Gray's versatility. Especially would I mention his knowledge of Irish Cromlechs and his articles on them. I can remember his being very upset by someone referring to Legananny and the Kemplestone as dolmens, whilst he maintained they were cromlechs, vigorously advancing his arguments and reasons.

Another very learned naturalist was the late Canon H. W. Lett. In my researches after snails and beetles I often found odd looking fungi and on one occasion going to have a big football-like thing named at the Museum, S. A. Stewart called over a minister who was there and said: "This is Canon Lett. He knows these things." At once Lett said: "*Hycoperdion giganteum*" and in such a way that I recognized another Worthy, and many a specimen went to Loughbrickland afterwards for identification.

Still another of the old gang was Nevin Foster to whom almost every feathered thing was like a friend, known by name, character, habit, or habitat. To spend an afternoon in his company, with a pair of field-glasses, was a really joyful and profitable experience. His knowledge of Birds and their ways often enabled him to predict what would happen next and his patience was almost inexhaustible.

To mention the name of Francis Joseph Bigger is to conjure up memories of the keenest archaeologist that the

Club ever had. Picturesque, if not even colourful, in his patriotic garb, and at times a bit impetuous and adventurous in his thoughts and writings, he was nevertheless at the beck and call of anyone who had querns, Shiel-a-na-gigs, or ancient monuments to show and discuss. His home at Ardrigh was a well filled private museum from cellar to roof, with the overflow in the garden. And it was open to any honest questioner on Natural History.

Other past members of the Club recalled by the President were:—H. C. Lawlor, William Swanston, Robert Bell, Lavens Ewart, etc.

In his concluding remarks the President drew a happily expressed picture of the further development of the Club, and emphasised the great importance of encouraging the Junior Section, as on its members the future success of the Club so largely depended.

THE IRISH HOUSE

The second Meeting of the Winter Session was held on 6th November, when Dr. E. E. Evans, M.A., D.Sc., F.S.A., gave an interesting lecture on the above subject, illustrating his remarks by many excellent photographic views and diagrams and tracing the gradual evolution of the Irish house from the earliest huts to the present comfortable and commodious farm dwellings.

The lecturer invited the co-operation of members of the Club in the study of the Irish peasant house, its form, materials of construction, roofing, internal plan, functions, furniture, its siting and the distribution of types. Surveys made by Swedish scholars for the Irish Folklore Commission, notably by Dr. Oke Campbell, had yielded fruitful results in Eire, and the writer had co-operated with the Commission in carrying out a survey of part of Co. Cavan in 1945. He had for some years been collecting information on other parts of Ulster and he outlined his general conclusions.

There was some evidence that an early house-type was of the aisled type, the roof supported on four parallel rows of wooden posts, the foundation, at least, of the walls being of stone. This type seems to have been widespread in Western Europe and was represented in Ireland by the banqueting hall at Tara and in Wales by the house described in the Welsh Laws. Possibly owing to the difficulties of maintaining a weather-proof roof of large dimensions the house appears to have been narrowed into the Long House, sheltering the family at one end and the animals at the other.

The long house, a single room in width, could be divided into two main types—that with central hearth and that with end hearth—and the former may have been influenced by the clochan, the oval bee-hive stone house which was megalithic in ancestry. It had maintained the hipped roof which could be explained by imitation of the corbelled ends of the bee-hive roof. Houses of this type, sometimes oval in plan, were found mainly in the south and west of Ireland, but no genuine examples had been discovered in the north, where the upright gable, with the fire generally at the gable end, was universal. A feature of this gabled style, confined to the north and west from North Antrim to Galway, was the wall-bed built in a special outshot by the side of the fire. The distribution of this device was complementary to that of the hearth with fireside partition and the jamb-wall, which occurred mainly in east and south Ireland, and was specially characteristic of the lowlands, *e.g.* around Lough Neagh. It had been explained as due to English influence, but it was pointed out in the discussion that it was common in certain areas of Co. Armagh where Scotch influence had been strong.

The lecturer dealt with known English styles which had been introduced either via Dublin (the Georgian) or by the planters in the 17th century. The Georgian style had left its imprint on native houses, *e.g.* in the Ards peninsula, but was for the most part confined to the houses of the land-owning class. The English half-timbered house had almost entirely disappeared but details of roof-construction could be related to its influence, notably the use of knee-crucks supporting heavy couples. The lecturer had discovered only one example, in Co. Armagh, of cruck-construction.

“ LOOKING BACK.”

The third Meeting of the Winter Session was held on 20th November, when Mr. J. A. S. Stendall, M.R.I.A., gave an interesting talk on the above subject, giving many instances of the Club's varied activities and introducing life sketches of a number of its members in the past. He illustrated his talk, delivered in a racy and humorous manner, by many excellent lantern views.

(No abstract).

“ FUNGI.”

The fourth Meeting of the Winter Session was held on 11th December, when Mr. J. M'K. Moon, lectured in a very

interesting manner on the above, illustrating his remarks by many specimens and beautiful and distinctive lantern views.

(No abstract).

“ FOSSILS.”

The fifth Meeting of the Winter Session was held on 15th January, when Professor J. K. Charlesworth, D.Sc., M.R.I.A., F.G.S., dealt with the above subject, treating it in his usual clear manner, and illustrating his remarks by many excellent lantern views.

(No abstract).

“ THE BEHAVIOUR OF BREEDING BIRDS.”

The sixth Meeting of the Winter Session was held on 5th February, when Mr. C. D. Deane took the above subject and dealt with it in a very interesting manner. He illustrated his remarks by many excellent lantern views, mainly of his own production.

Before beginning his lecture Mr. Deane was very warmly welcomed by the members on his safe return from active service in the late War.

(No abstract).

“ THE KINGDOM OF KERRY.”

The seventh Meeting of the Winter Session was held on 19th February, when Mr. R. Hayward lectured on above subject, illustrating his remarks by an excellent series of lantern views, mainly from beautifully executed line sketches.

(No abstract).

CONVERSAZIONE.

This Meeting, the eighth of the Winter Session, was held in the Assembly Hall on 19th March. It was the first Conversazione held since 1939, and was a pronounced success. There was an attendance of 265 members.

Space will not permit of a detailed report, but it may be mentioned that the exhibits included many fine displays from the Junior Division, in addition to contributions from Queen's University, Municipal Museum, Belfast High School, Friends' School (Lisburn), Belfast Royal Academical Institution, Methodist College, etc., etc.

Tea was served from 6.45 till 7.30 p.m. and the Meeting closed with a fine display of lantern views from 9.0 till 9.30 p.m.

ANNUAL MEETING.

The Annual Meeting was held in Museum Buildings, College Square North, on Tuesday, 16th April, 1946, the chair being occupied by the Vice-President (Mr. J. M'K. Moon), in the unavoidable absence of the President (Dr. E. E. Evans, M.A., D.Sc., F.S.A.).

ANNUAL REPORT.

During the late War our Summer excursions were necessarily restricted to confined limits, so the Committee is pleased to report that during the coming Summer the Transport Board has promised special buses, so there will be no restrictions as to time or place, and arrangements can be made with our affiliated Clubs, should this be desired, for joint excursions, as was customary in the past.

We are glad to report that our membership has continued, all through the War, at a fairly steady figure. Last year the total, including all classes of members, stood at 435. During the present year there was a loss of 24 through deaths and resignations. Opposite this 16 new members were elected, leaving the total at 427, a reduction of 8.

During the past year our four affiliated Clubs have been augmented by two, *viz.*:—Rostrevor Naturalists' Field Club and Mid-Antrim (Ballymena) Naturalists' Field Club. This means six affiliated Clubs in active operation. Two others are at present dormant, Omagh and Mid-Tyrone, largely owing to the lack of an organizing secretary, as there are many residing in both districts interested in Field Club work. It is hoped that there will soon be a revival of both Clubs.

During the Summer Session, apart from sectional excursions, ten excursions were held, all being well attended.

There were nine lectures, etc., delivered during the Winter Session, all being well illustrated by lantern views and the attendance at each was very satisfactory.

JOSEPH SKILLEN,	} Hon.
W. G. R. SKILLEN,	
	} Secretaries.

OBITUARY.

Mr. James Lowry.
Mr. T. W. Sefton.

Mr. W. B. Burroughs.

REPORT OF LIBRARIAN.

During the past Session an increasing number of publications from Exchanging Societies has been received, due to the return to more normal conditions. These have been duly acknowledged and various items of correspondence relating to exchanges have been dealt with.

V. F. GRAINGER, *Hon. Librarian.*

REPORT OF BOTANICAL SECTION.

The Botanical Section had a very good season with about 40 members, most of whom attended the Excursions and displayed keen and active interest.

The first excursion was to Helen's Bay and Carnalea on 26th May, when the Seashore and Rock Flora provided many interesting plants, with pride of place to *Scilla verna* (Vernal Squill). Miss Kertland gave interesting talks on the Salt Marsh plants met with at one point, and also later on the Marine Algae at Carnalea.

The second excursion on 23rd June was a combined one with the Geological Section to Conlig. On the way, some typical Co. Down plants, *Lepidium heterophyllum* (Smooth-podded Pepperwort), *Geranium pyrenaicum* (Mountain Cranesbill), *Silene Cucubalus* (Bladder Campion), and *Reseda Luteola* (Dyer's Weed). The Bog Plants included *Drosera* (Sundew), and *Pinguicula* (Butterwort), whilst all the typical Moorland plants were seen. Rare plants included *Pyrola medea* (Intermediate Wintergreen), *Pyrola minor* (Lesser Wintergreen), and *Cnicus pratensis* (Bog Thistle). Especially interesting were the Orchids: *Orchis purpurella*, *O. clodes*, *Gymnadenia conopsea* (Fragrant Orchis) and *Platanthera chlorantha* (Greater Butterfly Orchis).

The third excursion on 25th August was to the Lagan from Shaw's Bridge to Drum Bridge when, apart from the

water and marsh plants, a most important plant was seen in the grass, *Agropyron caninum* (Tufted Wheatgrass).

On October 5th, we had a most enjoyable tea party in the Stranmillis Club Rooms. This was very well attended and gave an opportunity for very pleasant social intercourse. There were exhibits of miscellaneous Botanical Literature, some seasonal plants and Fungi.

M. P. H. KERTLAND,	} Hon.
J. McK. MOON,	
	} Secretaries.

REPORT OF GEOLOGICAL SECTION.

During the year four geological excursions were made, the first to Toome Bridge on 16th June, 1945, to inspect the deposits of Kieselghur or Bann Clay. These extend as a thin layer one to six feet thick along the valley of the Lower Bann between Toome Bridge and Portglenone. They are especially well developed in the area between Lough Neagh and Lough Beg. They contain about two dozen species of freshwater diatoms.

The second excursion took place on 23rd June, 1945, to Conlig. Here the rocks belong to the Silurian or Gothlandian system and are of Lower Llandovery age. They consist of grey or purple non-fossiliferous grits and greywackes often micaceous and sometimes coarsely-grained and interstratified with green, purple and grey slates. Slickensides, faultbreccias, quartz and calcite veins were noted. The main object of the excursion was to inspect the now disused galena or "Lead Ore" mines. Crystals of galena, barytes, quartz and calcite were found, as well as copper and iron pyrites.

On the 14th August, 1945, an excursion took place to the Flint Factory discovered by the late Mr. Robert Bell on the slopes of Black Mountain. On the way a stop was made at a cliff in the Triassic sands in which formerly two pot-holes caused by a now diverted river had joined together so as to simulate the appearance of a large foot. This was locally known as the "Giant's Foot." Good examples of current and false bedding were seen here. Above the sandstone the platform composed of Triassic marl and forming the ground between the sandstone and the hills was pointed out. On this platform many of our brickyards and mill ponds are situated.

On the 15th September, 1945, a visit was paid to the Laganvale Brick Works by kind permission of Mr. T. Hunter. Mr. J. J. Hartley, M.Sc., F.G.S., acted as conductor. The members were given a most interesting and instructive talk on the period and conditions under which the glacial sands, clays and gravels were laid down. This was followed by a tour through the Brick Works.

A. H. DAVISON, } *Hon.*
H. S. BLACK, } *Secretaries.*

REPORT OF ZOOLOGICAL SECTION.

The Zoological Section held two excursions during the Session, the first being to Shaw's Bridge and Edenderry to study freshwater biology, numerous species of mollusca, etc., being noted, including *Planorbis cornucopis* L. and a freshwater sponge.

The second excursion was to Rockport, to examine the marine fauna. At Rockport we were fortunate in having a very low tide, and in consequence were able to collect and observe many interesting littoral species.

Although membership of the Section remains small in comparison with that of other Sections of the Club this is more than compensated by the interest and enthusiasm shown by those taking part in the excursions.

J. S. LOUGHRIDGE, } *Hon.*
R. MACDONALD, } *Secretaries.*

REPORT OF JUNIOR DIVISION.

Junior Membership stood at 231 last April. During the year 32 members were lost, 6 of these having reached Senior age and 26 being struck off the list for non-payment of subscriptions and non-attendance at excursions. Of the remaining 199 it is now proposed to remove a further 41, leaving 158 of the original membership list. When to this is added 27 new members elected during the year, the final membership remains at 185.

Attendances at the 17 excursions were not quite so high, perhaps due to the general excitement consequent to the end of the War. In general the excursions during the past field-season were undertaken with a view to underlining the interest of bird-study following the institution of the Denis Henderson Rankin Memorial Prize.

The excursions were:—

12th May	...	Groomsport, Co. Down.
15th May	...	Ballyutoag, Ligoniel.
19th May	...	Rowallane, Saintfield.
24th May	...	Lisburn District.
31st May	...	Belfast Castle Estate.
9th June	...	Crow Glen.
16th June	...	Toome, Co. Antrim.
21st June	...	Lagan River.
3rd July	...	Cave Hill and Carr's Glen.
21st July	...	Carrickfergus.
11th August	...	Black Mountain.
25th August	...	Gilnahirk.
1st September	...	Armagh.
8th September	...	Lagan Valley.
22nd September	...	Whitehead.
29th September	...	Saintfield Demesne.
20th October	...	Lagan Valley.

The training during the year stood the Division in good stead, for the preponderance of exhibits at the recent meeting in the Assembly Buildings was due to the members of the Junior Division and affiliated clubs, such as the Natural History Society of Methodist College, Downey House, Friends' School (Lisburn), etc. While we hesitated between making the exhibits a résumé of work done during the War years and having an entirely new display, almost all the final exhibits were new work or new work on continuation lines. Increased interest in surveys will have been noticed. From the Juniors' point of view, however, the time of year was not very hopeful, because the younger members like large and colourful displays in the way of autumn leaves, fungi, etc., and only the very patient ones were able to find any living specimens to display.

To sum up, this has been one of the most busy years and it is felt that, especially among the younger Juniors, really good advance has been made in general study. The foundation of bird-study has been laid and good interest aroused, but not sufficient advance has yet been made for entry for the Rankin Prize.

Denis Rankin was one of the six members of the Junior Division who served with H.M. Forces, and this Report concludes with an expression of our appreciation and thanks to them.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

BELFAST NATURALISTS' FIELD CLUB. **HONORARY TREASURER'S ACCOUNT FOR YEAR ENDED 31st MARCH, 1946.** **GENERAL ACCOUNT.**

RECEIPTS.		PAYMENTS.	
Balance at Credit of General Account at 31st March, 1945:—	...	Printing and Stationery ...	£38 17 4
With Northern Bank, Limited ...	£103 6 7	Postages ...	18 15 8
Subscriptions received:—		Incidental Expenses:—	
For 1945/46. Full Year, ...	£111 18 0	Secretary's Telephone and Expenses, Clerical Assistance, Bank Charges and Petty Outlays ...	20 18 6
373 @ 6/-	...		
For 1945/46. Half Year, ...	0 18 0	Hire of Lecture Hall and Committee Room ...	£78 11 6
6 @ 3/-	...	Lanternist's Fees for Winter Lectures ...	14 10 0
Arrears Collected ...	£112 16 0	Irish Naturalists' Journal, Affiliation Fee, 1946 ...	5 5 0
Paid in advance for 1946/47, etc. ...	14 17 0	Subscription to The National Trust ...	3 0 0
	6 12 0	Insurance, London Storage Charges, and other current expenses relating to "Flora of N.E. Ireland" ...	1 1 0
Entrance Fees, 16 @ 5/- ...	134 5 0	Junior Division Expenses ...	1 15 2
Excursion Accounts (without charging printing or postages) ...	4 0 0	Conversazione held 19th March, 1946:—	16 1 4
Sales of "Flora of N.E. Ireland" ...	3 3 6	Catering, Hire of Hall, and other expenses paid up to 31st March...	...
Sales of Club Badges ...	6 5 1		51 5 5
Junior Division Subscriptions ...	0 16 0		
Conversazione held 19th March, 1946:—	5 2 6		
Amount received up to 31st March for Tickets sold. 188 @ 2/6 and 77 Juniors @ 1/6 ...	29 5 6	Balance at Credit of General Account at 31st March, 1946:—	£171 9 5
		With Northern Bank, Limited ...	114 14 9
			£286 4 2

BELL-WELCH MEMORIAL FUND.

Total.		Interest.		Principal.	
Balance at Credit of the					
Fund at 31st March, 1945 ...					
£128	12 5	£16	17 9	£111	14 8
Interest, Belfast Savings					
Bank, Year to 20th Novem-					
ber, 1945 ...					
3	4 0	3	4 0	—	
... £131 16 5 £20 1 9 £111 14 8					
£131 16 5 £20 1 9 £111 14 8					

DENIS H. RANKIN MEMORIAL FUND.

Balance at Credit of the Fund at 31st March, 1945 ...	Total.	Interest.	Principal.
Interest on Northern Bank Deposit Receipt encashed 9th April, 1945 ...	£50 0 0	—	£50 0 0
Further sum donated 24th Jan., 1946, by Mr. W. J. Rankin and family, including £1. 10s. 0d. in lieu of interest ...	0 3 10	0 3 10	—
Interest Belfast Savings Bank, 20th Nov., 1945 ...	£51 10 0	£1 10 0	£50 0 0
	0 14 7	0 14 7	—
	£102 8 5	£2 8 5	£100 0 0

R. G. HENDERSON, Honorary Treasurer.

2nd April, 1946

Audited and found correct.

ALFRED M. M'KISACK, } Auditors.
WM. P. CHANDLER, }

April, 1946.



PRESENTED

7 APR 1947



JUL 1949

PROCEEDINGS AND ANNUAL REPORTS

SERIES II.
VOL. X.



PART IX.
1946—1947

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19th July, 1949.

A. C. Townsend, Esq.,
The General Library,
British Museum (Natural History),
Cromwell Road,
London, S.W.7.

Dear Townsend,

I am writing belatedly in reply to your letter of 11th June. The number of the Proceedings of the Belfast Natural History and Philosophical Society which you require is

being sent under separate cover together with the missing parts of the Proceedings.

being sent under separate cover to the Field Club Proceedings missing
one parts of the Volume 10, part 9 of the latter
from your set. Volume 10, part 9 of the latter
publication is the last to be published as, in
future, the Society proposes to issue only a
formal Annual Report and any material of a
scientific interest will be published in the
Irish Naturalists' Journal which I assume you
receive direct from the Editorial Committee.

I had a most enjoyable holiday, thanks
to the exceptional spell of fine weather, which we
had here in June. I am now looking forward to
the Edinburgh weekend where I hope that we shall
meet once again.

Yours sincerely,

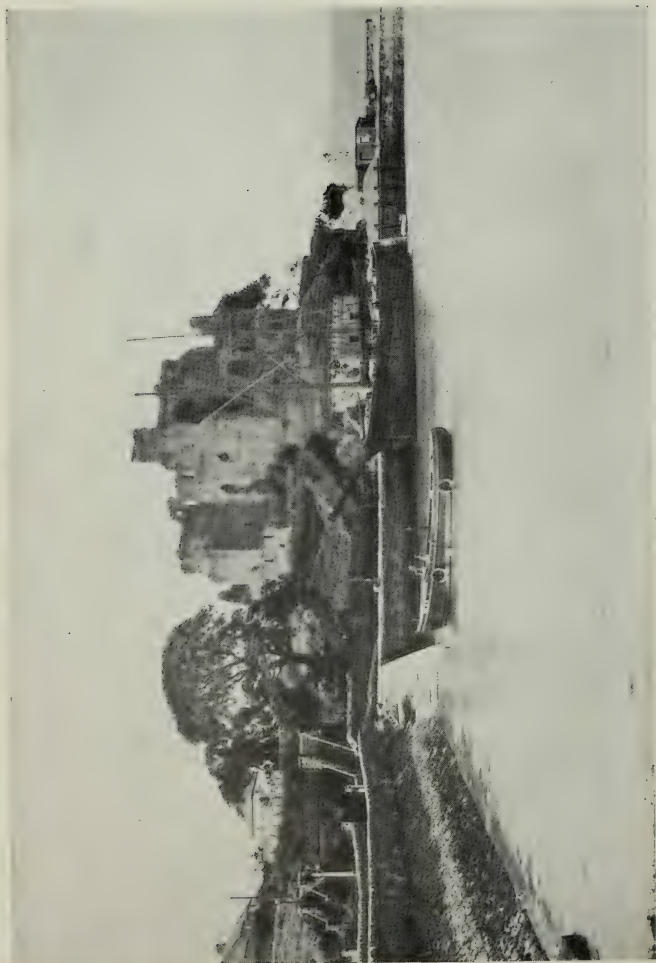
J. J. Fawcett

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25/4





King John's Castle—Carlingford.

[Photo by A.M.T.C.]

PROCEEDINGS
AND
ANNUAL REPORTS
OF THE
BELFAST NATURALISTS'
FIELD CLUB

For the Year Ending 31st March, 1947,

(EIGHTY-FOURTH YEAR)



SERIES II.
VOLUME X.



PART IX.
1946-1947.

BELFAST NATURALISTS' FIELD CLUB.

EIGHTY-FOURTH YEAR.

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PROCEEDINGS.

SUMMER SESSION.

EXCURSIONS.

May 25th	...	Copeland Islands.
June 1st	...	Carlingford.
June 4th	...	Cregagh Glen.
June 15th	...	Sallagh Braes.
June 25th	...	Carnmoney.
June 29th	...	Massereene Park.
July 6th	...	Ballycastle.
August 17th	...	Hillsborough.
August 31st	...	Kilkeel.
September 3rd	...	Lisburn.
September 7th	...	Newtownards and Grey Abbey.
September 28th	...	Downpatrick and Struell Wells.

NOTE. Only one Report of the above Excursions has been received, as appears below.

Now that many of the restrictions imposed by the late War have been removed, it is hoped that Conductors Excursions will revert to the old practice of sending in reports as promptly as possible to the Editor. Such reports add greatly to the interest of the "Proceedings" and frequently embody information that would otherwise be lost.

NEWTOWNARDS AND GREY ABBEY.

This Excursion, held on 7th September, attracted the largest party of the 1946 Summer Session, numbering over eighty members and friends, was conducted by Richard Hayward, and was transported by a double-decker 'bus and several private cars by way of Bradshaw's Brae.

A stop was made at Milecross House, built by Thomas Bradshaw about 1780, where many things of interest were examined, by kind permission of the present owner, Mr. Moore, who was congratulated by everybody on the splendid manner in which he has preserved and improved this historical old property. Mr. Hayward told many racy stories about Bradshaw, and pointed out the noble avenue

of two double rows of beech trees which is known as The Soldiers' Walk; our conductor also described the famous sham Megalithic avenue, in which the party took great interest, as well as Bradshaw's old fig tree, his tanning ditch, his cider press, and the now-ruinous Quaker Meeting House which he founded soon after the building of Milecross House.

Flush Hall was visited next, with the Colville Arms above the door—these were taken from the Colville mansion which once stood beside the old Priory, in Newtownards—and the base of the old High Cross of Newtown, now used as a drinking trough, lying beside a hedge in front of the Hall. Several water spouts, gargoyles, and a grotesque head, pillaged from the Priory, were also examined, and these had been rooted out by the Conductor during his pre-excursion survey. Several members referred to this circumstances as a valuable instance of the necessity of Conductors making pre-excursion visits in search of interesting detail.

The fine Town Hall of Newtownards, built in 1770, was specially opened for inspection, and pleasant time was spent in the examination of old records and pictures, of the well-proportioned Council Room, and of the curious and handsome solar fanlight. Mr. Hayward then pointed out several interesting 18th century dated-street-name-stones, in Frances Street, High Street, North Street and Castle Place, and thereafter took the party to the old Town or Mercat Cross, which he described in the fullest detail. Beside this Cross in the Londonderry Estate Office, the home of Alexander Stewart before his elevation to the peerage, and much time was spent here in the examination of the old bell of the Priory, now recast, of the Muniment Room, and of the cellar in which the notorious Cleland "sweated" his employer's sovereigns.

The Dominican Priory of Newtownards, just across the way, was the next point of interest, and this was examined in detail and very adequately described by the Conductor. The few remaining traces of the Colville mansion were then visited, and it was evident that the Conductor had spent much time in the preparation of this excursion. Much interest was evinced in the grand 18th century wall which surrounded the old orchard, and in the splendid cut-stone doorway in this wall, a portal which is now built-up and out of use.

Grey Abbey was reached later in the evening, and Mr. Alec Davison, in a few words of thanks to the Conductor, said how glad he was that much time had been spent on little-known points of interest, and less time on the remains of Grey Abbey which were well-known to most people who took any interest in the Ulster countryside. Nevertheless, the Conductor took the party round the ruins of the Cistercian foundation and was able to underline a few points of interest not generally known. He also took his party to the grave of the Rev. James Porter, in the nearby churchyard, and told them the story of that lively exchange of opposite political views between this great-hearted Dissenter (Billy Bluff) and Castlereagh, which ended in the execution, in front of his own manse, of this fearless man-of-God.

WINTER SESSION.

The authors of the Lectures, of which abstracts are given, are alone responsible for the views expressed therein.

AN ATLAS OF NORTHERN IRELAND.

At the opening Meeting of the Winter Session on Tuesday, 22nd October, held in the Museum Buildings, College Square North, at 8 p.m., the President (Professor E. Estyn Evans, M.A., D.Sc., F.S.A.), gave an address on the above subject before a large and interested audience, illustrating it by many lantern views, maps and diagrams.

In the course of his remarks the President reviewed the contents and purpose of National Atlases such as had been published in many countries, among them France, Germany, Russia, Poland, Czechoslovakia, Finland, and Italy. The National Atlas of Canada had been issued in 1906, and a new edition was in progress. In Great Britain great numbers of maps on a uniform scale were in preparation by a special Maps Office under a Government Ministry, and were being used in the planning of industry, agriculture and national amenities. These maps would ultimately be issued as part of a National Atlas.

At present it looked as though Northern Ireland would not be included in such a scheme, nor had it proved possible to interest the authorities in an Atlas of Ireland. Yet an Atlas would not only be of great use in planning: it would

be an instrument of education and research, and would disseminate accurate knowledge of the country and its peoples. It would contain, in cartographical form, information on all aspects of the environment, resources, natural history and demography.

In the absence of official support for a National Atlas, it behoved scientists to do what they could to prepare maps of distributions of all kinds. The Naturalists' Field Club had pioneered in the mapping of field antiquities, and the President urged that similar schemes should be applied to the study of the flora and fauna, of such matters as types of houses, dialects and elements of folklore. Lantern views were used to show maps on a uniform scale of $\frac{1}{4}$ inch to the mile which had been prepared by students of the Department of Geography at Queen's University, Belfast.

They showed population densities and the movement of population, the distribution of farm sizes and rural populations, of various crops and livestock, based on the Census returns and on the statistics collected by the Ministry of Agriculture.

The President also referred to the Land Utilisation Survey of Northern Ireland, which had been carried through by the Geographical Association and was being prepared for publication in the form of one-inch maps. The Government of Northern Ireland, realizing the importance of this survey for country planning, had given financial help and was now undertaking the publication of the maps and accompanying memoirs. He was hopeful that in time the Government would also come to realize the importance of surveys of other kinds, and that these would ultimately be published in atlas form. The naturalist, as well as the planner and the educationist, would gain by thinking in terms of special distribution.

SPECIAL PECULIARITIES OF ULSTER ARCHITECTURE.

The second Meeting of the Winter Session was held on Tuesday, 5th November, at 8 p.m., in the Museum Buildings, College Square North, when Mr. Denis O. D. Hanna, B.A., L.I.R.B.A., dealt with the above subject, illustrating his remarks by many drawings and sketches. There was a very good audience and the numerous facts placed before the members were dealt with in an extremely lucid and pleasing manner.

In the course of his remarks Mr. Hanna said:—

We in Ulster are proud of our association with England, but it would be very erroneous to suppose that we are a pocket edition of that country.

Springing from a Celtic race and sharing a Celtic culture in common with the rest of Ireland, Scotland, Wales and Brittany, we possess many interesting peculiarities of our own and these are not least evident in the field of Architecture.

There are a number of points in which Ulster is unique and which account for those differences which we are all conscious of without being able to define the cause.

Our buildings differ from England in that the half-timber house once familiar in the English plantation districts of Ulster is now non-existent, all examples having been destroyed in the 1641 rebellion. Since then the planters fell back on the Irish preference for stone or mud-wall cottages.

Irish architecture is based on the Maritime mode: thick walls, small windows that make one think of light-houses or coastguard stations, or the white and black deck houses of the windjammers, an essentially foreign expression to the ample windows of English Tudor sheltered in inland counties.

“ Planters Gothic ” churches are a style of late Gothic which survived half a century longer in Ulster than in England and embodied certain Renaissance features with unique results.

The Bawn or defended farm house in which the planters cattle were kept in safety from the Irish clansmen was another feature peculiar to this country. But the most important characteristic of Ulster is her peasant or vernacular Georgian.

Remote from Dublin, the centre of the Renaissance in Ireland, and more under the influence of the Mason or Craftsman than the Architect had brought to the province an unsophisticated yet beautiful expression of the Renaissance. The small house models itself on the squire's Gate Lodge and there grew up in the village some fine old shop fronts having their source in the commercial architecture of the grocer and the tea and wine merchant.

The fact is that Ulster stands upon the triple culture of three Churches, each with a different architectural ideal. The Church of Ireland possessing most of the ancient architecture of merit; the Presbyterian Church with its preference for Renaissance buildings, many of high quality; and the Roman Catholic staunch in its loyalty to the dual species of French Gothic.

Almost every Ulster town has this strange combination of all three, which gives the scene a character which is easily recognizable as the land of the Red Hand.

The fact that Presbyterians had largely rejected the Gothic revival and held on to classical modes long after they had died in England, meant that Ulster had a Post-Regency architecture of great merit, examples of good Georgian work passing far into the Victorian period.

In conclusion the lecturer expressed the opinion that Ulster would take a creditable part in the modern movement in architecture, when that movement had learned that great art had its roots in spiritual discovery and not simply in the emergence of some new fact concerning construction.

ZEOLITES OF THE INTERBASEALTIC BEDS. GEOGRAPHY AND ARCHAEOLOGY.

The third Meeting of the Winter Session was held on Tuesday, 19th November, at 8 p.m., in the Museum Building, College Square North, when two short papers on the above subjects were submitted respectively by Mr. H. S. Black and Mr. A. H. Davison, both members of the Geological Section.

Both papers were profusely illustrated by fine series of lantern views and diagrams. Mr. Black also displayed a splendid collection of Zeolites, mainly acquired by the workers in the Geological Section of the Club.

In the course of his remarks Mr. Black said:—

Visits were paid to numerous quarries around Belfast, including Boyd's quarry and the Neck at Carnmoney; Cave Hill; Squire's Hill; Colinward; Catcairn; Tiger Hill; Black Mountain; Divis; Roughfort.

The minor interbasaltic was observed at all these localities. The elevation above sea level varied from about 600 feet at Carnmoney to perhaps 1,000 feet at Divis. The average thickness was six to ten feet, but it seemed

considerably more at Catcairn, where its depth was hidden by the floor of the quarry. We visited the main interbasaltic beds at the Causeway and Lyle Hill to gain knowledge and failed to locate it on Divis.

Investigation was made into the zeolites located in the lavas situated just below the minor interbasaltic. Many of these were proved to be pseudomorphs, consisting of a high percentage of carbonate of lime.

At Catcairn we found chabasite, heulandite and stillbite, as well as natrolite and beautiful crystals of analcime. The analcime crystals were located on a surface over which water flowed quietly to the quarry floor.

At Carnmoney we obtained chabasite, natrolite and gmelinite in good quality and quantity. Calcite was a common crystal in most localities. It is understood that these minerals belong to the lavas of the lower basalts.

We visited Craigahullier to seek information of the zeolites located there and were well rewarded because these zeolites were silicates.

In the lower basalts were found natrolite and chabasite and in the main quarry above the main interbasaltic we discovered beautiful amygdules of chalcedony, opal and agate as well as occasional empty cavities.

In the upper and lower basalts the amygdules were most dense nearest the interbasaltic. They became less dense as they rose to the surface.

At Craigahullier in the friable brownish-black rock close to the main interbasaltic were observed admixtures of grey-green tint, with amygdules of a dull black substance, oval shaped and a few millimetres to a centimetre in length. Many of the cavities were empty.

An interesting zone of rock was noted above the interbasaltic. It consisted of a rock very rich in minute, pinhead, black nodules, so compacted that the appearance was one of a speckled rock. An examination of the black zeolites revealed traces of iron oxidization. The rock was not persistent as a layer. It was located half way along the left hand face, about 75 yards from the entrance. The amygdules of the upper basalt were large and elongated, the largest obtained being 7 inches by 2.5 inches, consisting of chalcedony.

This is the only quarry to date in which we have located these silicate zeolites in quantity. We did observe calcite needles in some of the empty cavities.

The lignite zones were also noted in passing. The strange phenomenon of radial columns was recorded for future investigation.

In conclusion we are not in a position yet to state that the quarries around Belfast contain the same minor interbasaltic zone, but everywhere investigated revealed that the interbasaltic rested less than 50 feet above the Chalk and one observes a comparable interbasaltic band above the Chalk outcropping along the coast from Portrush to the Causeway.

We hope to enquire further into the causes which have produced the abundance of pseudomorphs in the lower basalts.

(No abstract was furnished of Mr. A. H. Davison's paper).

QUESTION NIGHT.

The fourth Meeting of the Winter Session was held on Tuesday, 17th December, at 8 p.m., in the Museum Building, College Square North, Mr. G. H. Henderson, in the Chair, the President and Vice-President being unavoidably absent.

A number of Questions were asked and answered, all leading to animated discussions.

There was a very fair attendance, the Meeting lasting for one and a quarter hours.

MIGRATION OF BUTTERFLIES AND MOTHS.

The fifth Meeting of the Winter Session was held on Tuesday, 21st January, at 8 p.m., in the Museum Building, College Square North, when Dr. G. F. Cockbill read a paper on the above subject.

In the course of his remarks Dr. Cockbill said:—

It has long been known that locusts congregate in swarms and migrate, but it is only in recent years that the migratory habit has been found to extend to other groups of insects. Isolated accounts of mass movements of butterflies and moths have occurred in historic chronicles, usually

associated with some alleged supernatural event, in travellers' accounts and in scientific literature, but such movements were regarded as being unusual and sporadic events.

It was not until Dr. C. B. Williams became interested in the subject that a determined study of migration in Lepidoptera was made. Dr. Williams has spent many years in the Tropics, and has collected a wealth of first hand information on the habits of migratory Lepidoptera. His book "The Migration of Butterflies," published in 1930, sets out clearly the evidence of migration in many species of Lepidoptera, including a compilation of the literature, historic and recent, relating to the subject.

Migration is defined by him as being "a periodic, more or less unidirectional continual movement, assisted by the efforts of the animal and in a direction over which it exerts a control, which results in the animal passing away from its previous daily field of operations." Such movements have been shown to occur in Lepidoptera and to be independent of the direction of the prevailing wind, and therefore to some extent under the control of the insect.

Of the sixty-eight species of British Butterflies about one fifth are known migrants. They can be classified according to the nature of their occurrence in Britain.

1. *Vagrants.* Generally scarce, straying far from their normal habitat.

The Milkweed or Monarch Butterfly (*Danaus plexippus*) a native of North America is an example of an insect which occurs periodically in small numbers in Britain, but which is incapable of supporting itself there. The food plant of the larvae is the Milkweed, *Asclepias* sp. which does not occur wild in Europe, but is a native of North America. Since 1876, the date of the first record, 57 specimens of this butterfly have been caught in Britain and 94 recorded but not captured. In 1933, there were 33 records. Most records have occurred in the months of September and October, and from the South-west and South coasts of Britain. It is possible that specimens have been carried across the Atlantic by ships, but the evidence is strongly in favour of their having flown across. Specimens have been seen flying strongly 300 miles west of the Scottish coast. The time of their occurrence in Britain coincides with the period of migratory activity in North America.

The summer distribution of the species in North America extends throughout the United States and as far north as Hudson Bay. In September and October, the butterflies congregate in enormous swarms, and fly southwards. This southerly movement has been recorded throughout North America by many observers. During the winter months, the species collects in swarms along the coastal belt of California and in Florida. In Monterey, California, the same pine trees are literally covered year after year with hibernating butterflies and are exhibited to visitors as a local phenomenon. During the spring months, the butterflies leave the trees and fly northwards in small isolated groups, laying eggs en route. In the Southern States, where eggs are laid first, three generations may be produced in the year, but in the region of Hudson Bay, only one generation is produced. The progeny, without any previous knowledge of routes, undergo the southward flight in the following autumn. The flight from Hudson Bay to South California is roughly the same distance as the Atlantic crossing, and their appearance in Britain is probably due to the butterflies having strayed off their course.

2. *Seasonal immigrants which cannot normally maintain themselves in the winter climate of the British Isles.*

The Painted Lady (*Vanessa cardui*) is an example of this group. It occurs almost annually in Britain and has been recorded flying in from the sea along the south coasts of Britain during April and May. The species has been recorded moving northwards across North Africa and the Mediterranean countries in April and early May, and appearing in Britain and the more northerly European countries in late May and June.

Evidence is accumulating to support the view that after one or two broods are produced, a southerly autumn flight occurs from Britain to the Continent. It is likely that Britain is on the fringe of the area of distribution of this species which has North Africa as a centre. As the population increases during the early summer, the species spreads farther afield, and as it diminishes during autumn, the area occupied by the species is reduced.

3. *Resident species which may be reinforced by immigration.*

The Cabbage White Butterflies (*Pieris brassicae* and *P. rapae*) may be taken as examples of this group. The

recorded movements of these butterflies show that there are two main flight seasons, one occurring during the end of May and beginning of June, and the other during the end of July and beginning of August, corresponding with the two broods of these species. In Europe, the first flight season shows no pronounced directional movement, but in the second season, the recorded flights are unmistakably to the south. The movement appears to originate in Scandinavia, passing through Germany and Austria to break up in the region of the Alps.

In Britain the movement is predominantly to the west and north-west during both seasons. Most of the flights are recorded from the east and south coasts, supporting the view that the migrations originate in north Europe.

During 1940, however, a large southerly migration occurred in Britain extending from the north of Scotland to the south of England. The first records occurred at Harpenden, Herts. on July 14th. Daily records were kept at Harpenden from this date until the movement terminated about August 22nd. During a total of 300 minutes observation over a 100 yard front, 1,627 insects were seen to pass to the south of an east-west line, and only 256 to the north. The peak activity at Harpenden occurred on July 22nd when up to 170 insects were recorded per 5 minutes passing to the south over a front of 100 yards.

Over a hundred independent records of flights in other parts of the country were received during this migration. There appears to have been two main movements. One occurred to the south and was recorded in Cambs., Herts., Oxfordshire, Shropshire, Gloucestershire, Somerset and South Wales. The other was a large immigration from the south or south-east extending along the south coast from Kent to South Devon.

The study of migration in insects has been extended since 1931 by the activities of the Insect Immigration Committee of the South Eastern Union of Scientific Societies, under the energetic direction of the Hon. Secretary, Capt. T. Dammreuther, R.N., "Windycroft," Hastings.

It is the function of this Committee to collect and collate records of insect migrations. The masters of lightships and keepers of lighthouses co-operate in sending in valuable information. More observers are needed in Ireland, and any

interested naturalist is invited to send to the Hon. Secretary, information relating to insect migration, stating the species observed, the direction of flight, the date and locality, the name and address of the observer and any other relevant data.

ISLAND MACHUGH AND ITS BEARING ON IRISH ARCHAEOLOGY.

The sixth Meeting of the Winter Session was held on Tuesday, 4th February, in the Museum Building, College Square North, when Mr. O. Davies, M.A., read a paper on the above subject.

Island MacHugh is a small island in the lower lake in the Baronscourt Demesne. Excavations have been in progress there from 1937-9 and in 1946 and 1947. The site is remarkable for its long history, illustrating the development of lake-dwelling in Ireland from early times until the end of the middle ages.

The site was first occupied by the " Neolithic B " folk. Up to that time it was a reedy patch in the lake. Brushwood and pegs were then laid down, and the place made sufficiently dry for habitation. The " Neolithic B " or " Peterborough " culture has been identified in various parts of England and Scotland. It came from the southern shores of the Baltic, and is descended from the great group of Mesolithic fishing cultures which extended across the north European plain. It is characterised by coarse pottery, liberally ornamented with scorings and cord-impressions. Island MacHugh was the first Irish excavation in which this pottery was recognised, though it had previously been identified from stray finds at Dundrum, Lambay, etc.

The date of the Neolithic B culture in England is comparatively late, not before 1500 B.C. It was preceded by that of other island-dwellers. The Mesolithic folk had reached Ireland and spread along its rivers and on to mud-flats on its lakes, but do not seem to have built artificial islands. At Enagh Lough (Derry) a " Neolithic A " culture was identified earlier than the " Neolithic B." This was probably derived from a Neolithic A people identified in the English Lake District. So far as we can see, the Neolithic B people had settled only in the east and south of England and in Scotland, and thence must have reached Ireland.

After the Neolithic B period, Island MacHugh was for a time deserted. The next remains found on it belong to the Late Bronze age. Such finds have been made on a few other crannogs in Ireland, and it is likely that the invasions of this period caused a considerable settlement on lakes and rivers. The Late Bronze age people were Celts, who had been in contact with lake-dwellers in Switzerland and south Germany before they reached the British Isles. It cannot be proved how early the Late Bronze age settlement on Island MacHugh was. At present we know very little that can be placed between the Late Bronze age and early Christian times, so the former period may have lingered on into the Christian era, as it did in north England.

The principal Late Bronze age remains at Island MacHugh were of two large circular houses, one superposed on the other. They were floored with planks, brushwood, leaves and sand, and walled with double rings of posts. They must have been 70 feet across, and only portions of them have been uncovered. They seem parallel to the large house discovered by Bersu in a rath of Lissue (Antrim) and to the structures on the crannog of Ballinderry I. (Meath). But Island MacHugh is considerably older than either of these sites, and is probably the earliest large house yet known.

Island MacHugh continued to be occupied throughout the Middle Ages, and has yielded a particularly fine series of late medieval pottery, as well as other remains. A few coins assist the dating. In the sixteenth century a small stone tower was built on the site. It was granted in Elizabethan times to Henry Hovenden, foster-brother of O'Neill. Like English colonists since, he was not satisfied with the cramped conditions under which the natives lived, eating and sleeping in the same room, and so he enlarged the castle with an extra storey.

The castle was attacked by Sir Henry Docwra in 1601; he has left us two accounts of his operations. It was slighted after its surrender, and has since that time been abandoned, save for a small cottage in the early nineteenth century.

It is hoped to bring the excavation to a close in the summer of 1947. Its publication will require a large volume. There is no doubt that in many ways Island MacHugh is the most important site yet excavated in

Ireland, though similar sites, perhaps with as long a history, probably await the excavator as soon as he has time to tackle them.

SEAWEEDS.

The seventh Meeting of the Winter Session was held on Tuesday, 25th February, in the Museum Building, College Square North, when Dr. M. J. Lynn dealt with the above subject.

(No abstract).

THE ORIGIN AND SIGNIFICANCE OF IRISH PLACE NAMES.

The eighth Meeting of the Winter Session was held on Tuesday, 18th March, in the Museum Building, College Square North, when Rev. Leo M'Keown, C.C., lectured on the above subject.

(No abstract).

ANNUAL MEETING.

The Annual Meeting was held in Museum Building, College Square North, on Tuesday, 15th April, 1947, the Chair being occupied by Dr. E. E. Evans, M.A., D.Sc., F.S.A.

ANNUAL REPORT.

Your Committee in submitting the Annual Report for the 84th year has pleasure in recording that the activities of the Club have been well maintained, and that the membership continues to include practically everyone who is interested in adding to the knowledge of the natural history and archaeology of our district.

At the beginning of the Club year there were 448 members on the roll. During the year 10 members died, 15 resigned, 6 allowed their membership to lapse, 36 new members were elected, and one member of the Junior Division was transferred. At present the total membership is 454, an increase of 6.

The Summer Programme consisted of 12 general excursions, all of which were held. The visit to the Copeland Islands attracted about 60 members and friends. About 80 were present at the excursion to Newtownards

and Greyabbey. Attendances at other excursions varied according to weather conditions, and averaged about 30. The Sectional Excursions of the Club were well attended.

Seven lectures were given during the Winter Session, and one evening was devoted to Questions sent in by members. On 25th February, owing to a severe blizzard, there was a record low attendance of 12. About 150 were present at the last lecture of the season. Excluding these exceptional figures the average number present at the lecture did not exceed 50.

Your Committee regrets to report the deaths of 10 members whose names are appended. The names include Miss Sarah Blackwood and Mr. Jams Orr, a Past President, who had each been members for 50 years; Mr. W. J. Stewart, M.P., who had been a member for 53 years and the Right Hon. Samuel Cunningham who had been a member for 63 years.

During the year the Annual Reports and Proceedings from year 1940-1941 till year 1945-1946 were printed and circulated. Stencilled copies of the Rules were also sent to all members.

In view of the fact that the last *Conversazione* was held in March 1946, your Committee decided that if this function were to be restored to its pre-war importance, the next *Conversazione* could not be held until late in 1947.

At the last Annual Meeting the appointment of an Honorary Treasurer was left in the hands of your Committee who were fortunate in securing the services of Mr. R. C. Davidson. The decision regarding the Secretaryship was also left to your Committee, but no appointment was made. Throughout the year the secretarial duties have been carried out by a sub-committee. At the beginning this consisted of Mr. and Mrs. Grainger and Mr. E. N. Carrothers. Mr. and Mrs. Grainger resigned in consequence of their taking up residence in Limavady, and Mr. Moon was appointed to the Secretarial Sub-Committee.

Your Committee desires to record its thanks for courtesies extended to the Club during the Summer Excursions by the Commissioners of Irish Lights, the Borough Council of Newtownards, Mr. Moore of Milecross House, and Mr. Bell, Town Planning Officer of Lisburn.

E. N. CARROTHERS,	} <i>Hon.</i> <i>Secretaries.</i>
J. MCK. MOON,	

OBITUARY.

Berry, Col. R. G. J. J.	Macartney, Miss L.
Blackwood, Miss Sarah	Millin, S. Shannon
Blair, John T.	Murray, B.
Cunningham, Rt. Hon. Samuel	Orr, James
Jermyn, Capt. W. M.	Stewart, W. J., M.P.

REPORT OF BOTANICAL SECTION.

In addition to the customary sectional excursions there were week evening excursions to places within easy reach of the city and much interesting work was accomplished by the section, which now consists of 60 members. All these excursions were well attended and some of them had, as their special aim, instruction in the use of a "Flora."

The excursion of June 22nd, was to Staffordstown and by the Lough Neagh shore to Toome. This gave an opportunity of seeing the characteristic lake and marsh plants of that area, although it was too early to see *Spiranthes stricta*.

On August 24th a most interesting day was spent at Downpatrick where *Galium cruciata* and *Dipsacus sylvestria* still inhabit the Rath and near the cricket ground a plant new to our area, *Mentha longifolia*, was seen.

A visit to Red Hall, Ballycarry, on September 21st, was made in order to study the Fungi, but the season proved disappointing for these and only a few characteristic species appeared. One important find was *Helvella crispa*.

A notable event of the evening excursions was the re-finding of *Vaccinium Vitis* on the Cave Hill, where it had been lost sight of for nearly a century.

As on the previous year the Section held a tea party in December, when 40 members attended and enjoyed themselves so well that this seems destined to become an annual function. Mr. R. D. Meikle kindly presented a book prize for a Botanical Conundrum, which was won by Miss E. M. Bell.

M. PATRICIA H. KERTLAND,) JOHN MCK. MOON,)	Hon. Secretaries.
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REPORT OF GEOLOGICAL SECTION.

The year just past was a record for the number of excursions of geological interest held by the Club. Eight of these were held during the Summer and six during the Winter.

May 18th, 1946. An excursion took place to Scrabo to study the Trias and Tertiary Sills. Here the Trias is about 120 feet thick. It is well-bedded and has thin reddish clay partings, ripple marks, sun cracks, and rain pits.

June 21st. The Club visited Carlingford. In the afternoon the quarries of Carboniferous Limestone were inspected. The dense blue stone which was once in great demand for the manufacture of hydraulic lime was examined. Here the dykes ramify throughout the quarry and are sometimes forced between the beds of limestone. The quarry is now disused and grass is growing over the dumps. From here the party walked over the flat golf course to Greenore and had little more than a glance at the raised beach here of which this forms a part.

June 22nd. An excursion was made to Dundonald area to inspect the glacial sands and gravels which are a prominent feature of this district.

June 25th. An excursion led by H. S. Black, M.A., to a basaltic quarry at Carnmoney. Here the conductor gave an interesting talk on the lower basalt flows, minor interbasaltic beds and the formation of zeolites. The quarry was particularly rich in zeolites.

July 6th. During a Club excursion to Ballycastle the Carboniferous sandstones, shales, and coal beds were seen as well as dykes and faults. The lower deltas of the Carey glacial lake were seen from the Golf Links as well as the raised beach and blown sand.

3rd August. The famous succession of Jurassic and Cretaceous beds were visited at Colin Glen.

20th August. H. S. Black took the section to Craigahullier where the interbasaltic bauxite, lignite, and plant remains were studied.

31st August. During the Club excursion to Kilkeel many geological phenomena were seen including Maggie's

Leap, the Cone Sheet at Bloody Bridge and Glasdrummond as well as the glacial deposits and river meanders at Kilkeel.

During the Winter six excursions were made to various quarries in the neighbourhood of Belfast to study the lower tertiary basalts, minor interbasaltic beds, and zeolites. These were under the direction of Mr. H. S. Black, M.A. and proved of great interest to those taking part.

A. H. DAVISON,	} <i>Hon.</i>
H. S. BLACK,	
	} <i>Secretaries.</i>

REPORT OF ARCHAEOLOGICAL SECTION.

The Archaeological Section held two Meetings during the Session: one on June 22nd to Mallusk, the other on July 27th, to Kilroot.

We were very fortunate in getting a lovely summer day for the Mallusk visit; but heavy showers prevented a large turn out of members to Kilroot.

We visited Mallusk graveyard and saw the graves of the Bigger family and the celebrated James Hope. There is nothing left of the medieval church of Mallusk, which was valued at forty shillings in the Taxation of Pope Nicholas in 1306.

We walked to the "Trench," one of the fortified houses of the neighbourhood during the Revolution of 1688-89. Here Protestant families, fearful of the raids of M'Carthy More and his soldiers, banded themselves together and withdrew when night time fell into this house, which was well wooded and had a deep entrenchment on two sides.

During the 18th and 19th centuries the "Trench" was in the possession of the Bigger family. They had settled first in a house off High Street, Belfast, about the middle of the 17th century, and had come from Nithsdale, Dumfries. David Bigger started the Carnmoney Calico Printing Works at Mossley about the end of the 18th century.

We ended our excursion by walking about a mile towards Roughfort to Grania's Grave, a well known megalith.

On July 27th we went by bus to Kilroot where we visited the churchyard and afterwards the Bishop's House. The Church of Kilroot is one of the oldest ecclesiastical foundations in this country and dates from the time of St. Patrick. It was valued in the Taxation of Pope Nicholas at 5 marks, but like Mallusk was mentioned as being in a ruined condition in 1622. There is nothing left to-day of the Church except the few stones which support the bullaun stone, although a considerable quantity of dressed stones is known to have been removed for modern buildings in the neighbourhood.

A portion of a much weathered Anglo-Norman Grave Slab is in the garden of the adjoining farmhouse, also another bullaun or basin stone of a more recent type than the one in the graveyard. The Holy Well which Albeus prophesied would never fail is in the southern part of the farmhouse. About 1604 the Bishop of Down and Connor selected this place as a site for a new Bishop's House or Palace enclosed in a fortified bawn. It was three storeys high and had four circular towers, one at each corner of the bawn. Members were greatly interested in the Dovecot built in one of the towers in more recent times. It is one of the few in Northern Ireland.

In spite of the inclement weather a few members visited Dean Swift's house near Kilroot Station, about a mile away.

I. R. CROZIER, } Hon.
J. SKILLEN, } Secretaries.

REPORT OF ZOOLOGICAL SECTION.

During the year only two sectional excursions were held. The first to the Lagan canal near Lisburn for the purpose of examining the freshwater fauna. The second excursion which was held during August was to Crow Glen near Ligoniel. This is a very interesting area and during the afternoon numerous specimens of the land snail *Arianta arbustorum* were collected as well as the slug *Arion ater* in several colour varieties. Other mollusca included *Lauria cylindracea*, *Clausilia rugosa*, numerous species of *Hyalinia* and a number of common slugs. Several species of Isopoda and Myriapoda were also noted.

RANALD MACDONALD, } Hon.
J. S. LOUGHRIDGE, } Secretaries.

REPORT OF JUNIOR DIVISION.

During the year 67 new members were elected and 10 resigned, our total number now being 242.

The Excursions made during the Session were as follows:—

6th April	... Lagan at Edenderry.
4th May	... Belfast Castle Estate.
18th May	... Cairngaver.
30th May	... Botanic Gardens.
31st May	... Moira Canal and Swamp.
1st June	... Divis Mountain.
6th June	... Cranmore Estate.
8th June	... Scrabo Hill.
13th June	... Campbell College Grounds.
22nd June	... Saintfield Demesne.
6th July	... Whithead..
28th September	... Lagan Valley.
5th October	... Carr's Glen and Cave Hill.
12th October	... Whitehead and Blackhead Lighthouse.

Attendances at the above 14 excursions were kept up to a healthy standard.

Subscriptions and arrears received during the year reached a good level and a special effort was made to reduce expense by lessening the number of circulars issued.

FELICITY BOLTON, *Hon. Secretary.*

CLUB MEDALLISTS.

- 1923. William Swanston, F.G.S.
- 1924. Nevin Harkness Foster, F.L.S., M.R.I.A.
- 1925. Nathaniel Carrothers.
- 1926. Robert Bell.
- 1927. R. Lloyd Praeger, D.Sc., M.R.I.A.
- 1928. R. J. Welch, M.Sc., M.R.I.A.
- 1931. S. A. Bennett, B.A., B.Sc.
- 1932. J. A. S. Stendall, M.R.I.A., M.B.O.U.
- 1933. A. M'I. Cleland.
- 1934. Professor Gregg Wilson, O.B.E., D.Sc., M.R.I.A.
- 1936. Professor J. K. Charlesworth, D.Sc., Ph.D., F.G.S.
- 1937. Rev. W. R. Megaw, B.A., M.R.I.A.
- 1938. Miss W. J. Sayers, B.A.

**BELFAST NATURALISTS' FIELD CLUB.
HONORARY TREASURER'S ACCOUNTS FOR YEAR ENDED 31st MARCH, 1947.
GENERAL ACCOUNT.**

RECEIPTS.		PAYMENTS.	
Balance at Credit of General Account at 31st March, 1946:—		Printing and Stationery ...	£26 4 5
With Northern Bank, Ltd. ...	£114 14 9	Postages ...	10 4 9
Subscriptions received:—		Incidental Expenses, Clerical Assistance, Bank Charges and Petty Outlays ...	9 11 10
For 1946/47:			
Full Year, 342 @ 6/- ...	£102 12 0	Hire of Lecture Hall and Committee Room ...	£46 1 0
Half Year, 18 @ 3/- ...	2 14 0	Lanternist's Fees for Winter Lectures ...	14 10 0
Arrears collected ...	£105 6 0	Irish Naturalists' Journal, Affiliation Fee, 1947 ...	10 10 0
Paid in advance for 1947/48 ...	5 14 0	Subscription to the National Trust ...	3 0 0
	1 16 0	Special subscription to the National Trust, 'Colin Glen Fund' ...	1 1 0
Entrance Fees, 32 @ 5/- ...	112 16 0	Insurance, London storage charges and other current expenses relating to "Flora of N.E. Ireland." ...	5 5 0
Excursions Account (without charging printing or postages) ...	8 0 0	Costs of printing and distributing "Proceedings" for years 1940/41 to 1945/46 ...	3 9 7
Sales of "Flora of N.E. Ireland ...	14 12 3	Less Anonymous Donation ...	£108 18 8
Sales of old "Proceedings," etc. ...	6 8 0		5 0 0
Sales of Club Badges ...	0 19 6	Junior Division Expenses ...	103 18 8
Junior Division Subscriptions ...	0 10 0		12 14 8
	8 5 0		
		Balance at Credit of General Account at 31st March, 1947:—	£200 9 11
		With Northern Bank, Ltd ...	65 15 7
			£266 5 6

BELL-WELSH MEMORIAL FUND.

	Total.	Interest.	Principal.	Balance at Credit of the Fund at 31st March, 1947:— With Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Bell-Welsh Memorial Fund"	Total.	Interest.	Principal.
Balance at Credit of the Fund at 31st March, 1946 ...	£131	16	5	£20	1	9	£111 14 8
Donation on 20th August, 1946 by Dr. R. Lloyd Praeger ...	5	0	0	—	—	—	5 0 0
Interest, Belfast Savings Bank, Year to 20th Nov., 1946 ...	3	6	1	3	6	1	—
	£140	2	6	£23	7	10	£116 14 8
	£140	2	6	£23	7	10	£116 14 8

DENIS H. RANKIN MEMORIAL FUND.

	Total.	Interest.	Principal.	Balance at Credit at 31st March, 1947:—With Belfast Savings Bank in the name of "Belfast Naturalists' Field Club, Denis H. Rankin Memorial Fund"	Total.	Interest.	Principal.
Balance at Credit of the Fund at 31st March, 1946 ...	£102	8	5	£2	8	5	£100 0 0
Interest, Belfast Savings Bank, year to 20th Nov. 1946 ...	2	4	6	2	4	6	—
	£104	12	11	£4	12	11	£100 0 0
	£104	12	11	£4	12	11	£100 0 0

ROBERT C. DAVIDSON, Hon. Treasurer.

Audited and found correct.

W. J. WEATHERUP,)

W. P. CHANDLER,)
Auditors.

2nd April, 1947.

14th April, 1947.

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